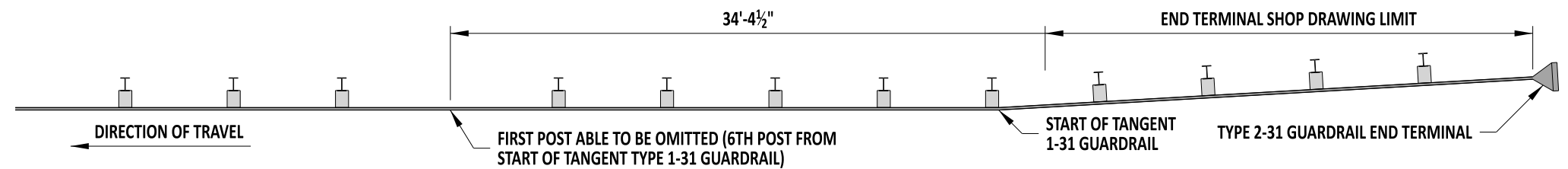
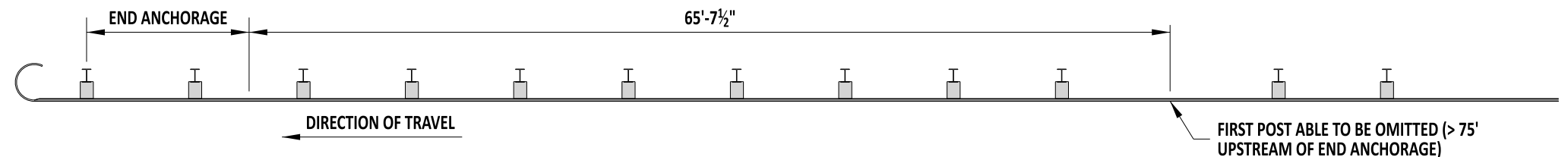
**OMITTED POST WITH A TYPE 1-31 GUARDRAIL END TERMINAL****OMITTED POST WITH A TYPE 2-31 GUARDRAIL END TERMINAL** **ISN'T OUR CURRENT 2-31 ALSO ENERGY ABSORBING?****OMITTED POST WITH AN END ANCHORAGE****NOTES:**

- 1). DETAIL SHOWN WITH CURB. NESTING WITHIN THE LIMIT OF PAYMENT IS NOT REQUIRED IN THE ABSENCE OF CURB.
- 2). WHEN NESTING IS REQUIRED, EXTEND NESTING A MINIMUM OF 9'-4 1/2" ON EITHER SIDE OF THE OMITTED POST.
- 3). PROVIDE AT LEAST 56'-3" BETWEEN OMITTED POSTS ON TYPE 1-31 GUARDRAIL RUNS.
- 4). GUARDRAIL POSTS WITHIN THE LIMITS OF A GUARDRAIL END TERMINAL SHALL NOT BE OMITTED. THE FIRST POST ELIGIBLE FOR OMISSION IS AS SHOWN TO THE RIGHT.
- 5). GUARDRAIL POSTS SHALL NOT BE OMITTED WITHIN A TRANSITION SECTION. THE FIRST POST OMITTED SHALL BE AT LEAST 34'-4 1/2" AWAY FROM THE UPSTREAM END OF THE W-TO-THREE TRANSITION ELEMENT.
- 6). AN OMITTED GUARDRAIL POST SHALL BE NO LESS THAN 43'-9" (OR 7TH POST) AWAY FROM THE OUTER LONG WOOD BREAKAWAY POST OF A LONG-SPAN SYSTEM (GUARDRAIL-OVER-CULVERTS).
- 7). THIS DETAIL CAN NOT BE USED WITH TYPE 1-31, GUARDRAIL STEEP SLOPE APPLICATIONS (SEE DETAIL B-1, SHEET 5).
- 8). MASH COMPLIANT SYSTEM - DESIGN BASED ON MWRSF REPORTS TRP-03-326-16, TRP-03-393-19, AND TRP-03-433-21.



Andrew Shott
ENGINEERING SUPPORT

12/13/2022
DATE

RECOMMENDED

TYPE 1-31, GUARDRAIL WITH OMITTED POST

STANDARD NO. B-1 (2022)

SHT. 4 OF 5

REVIEWED

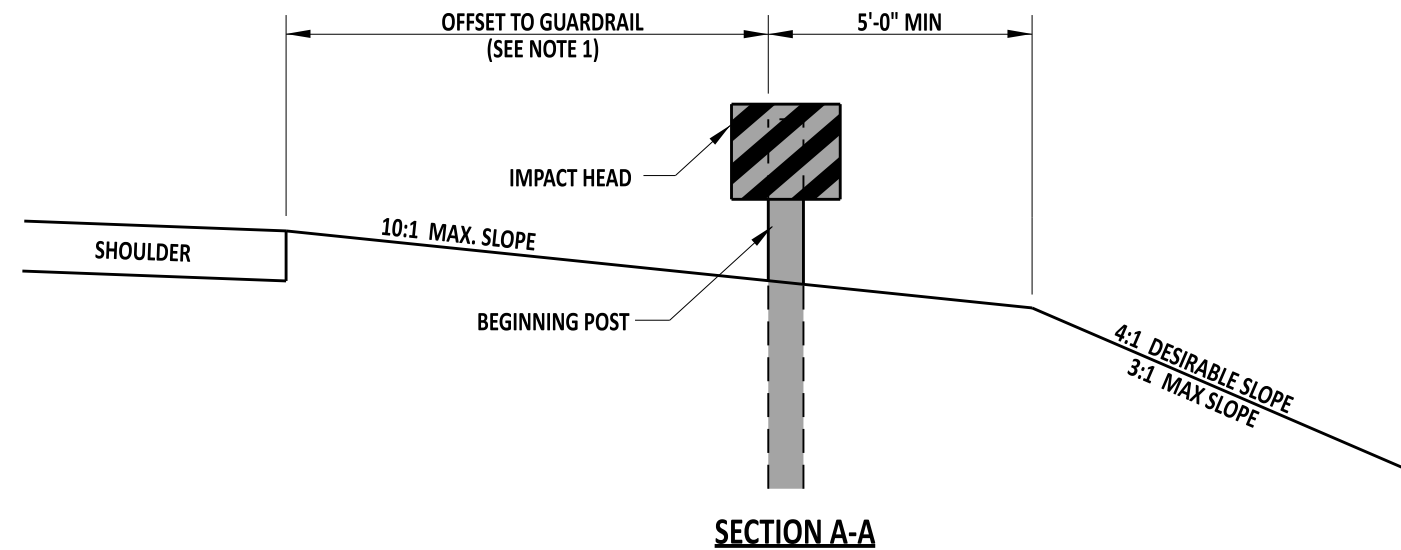
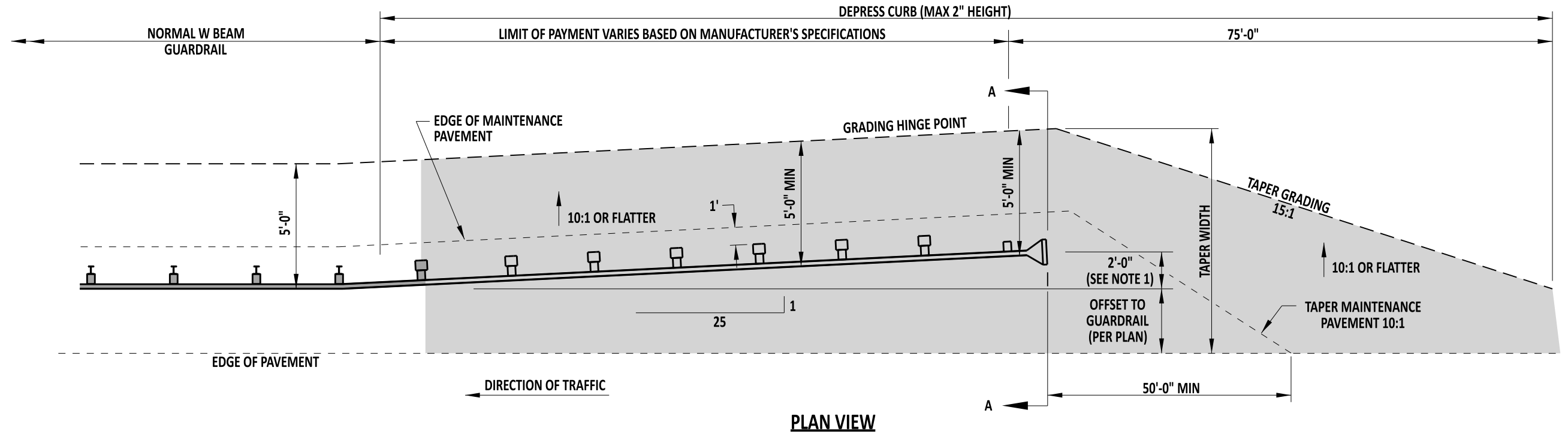
Mike Lee
DEPUTY DIRECTOR - DESIGN

12/16/2022
DATE

APPROVED

Shrey
CHIEF ENGINEER

12/21/2022
DATE



NOTES:

- 1). FLARE THE END TREATMENT AWAY FROM THE ROAD IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS UNLESS THE PLANS SPECIFY OTHERWISE.
- 2). THIS DETAIL WAS SOLELY CREATED TO SHOW THE GRADING REQUIRED FOR THIS TYPE OF GUARDRAIL END TREATMENT AND IS APPLICABLE IN THE ABSENCE OF SPECIFIC GRADING REQUIREMENTS FROM THE GUARDRAIL END TREATMENT MANUFACTURER.
- 3). THE GUARDRAIL END TREATMENT SHALL BE INSTALLED AS PER THE MANUFACTURER'S REQUIREMENTS.
- 4). IF CURB IS PRESENT, DEPRESS THE CURB TO A MAXIMUM HEIGHT OF 2" WITHIN THE LIMITS OF THE END TREATMENT AND THROUGHOUT THE LENGTH OF THE TAPER GRADING.
- 5.) GUARDRAIL REFLECTORS SHALL NOT BE PLACED WITHIN THE LIMITS OF THE GUARDRAIL END TREATMENT.

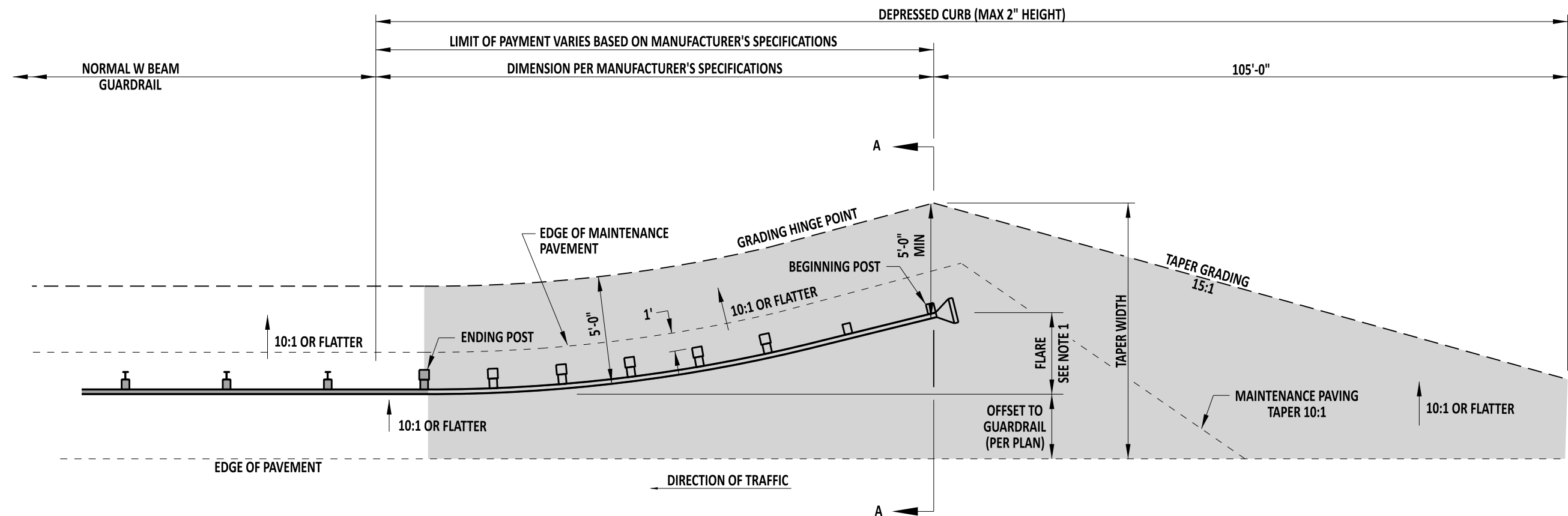


Andrew Shott
ENGINEERING SUPPORT
RECOMMENDED
12/13/2022
DATE

GRADING FOR GUARDRAIL END TREATMENT ATTENUATOR, TYPE 1
STANDARD NO. B-2 (2022) SHT. 1 OF 3

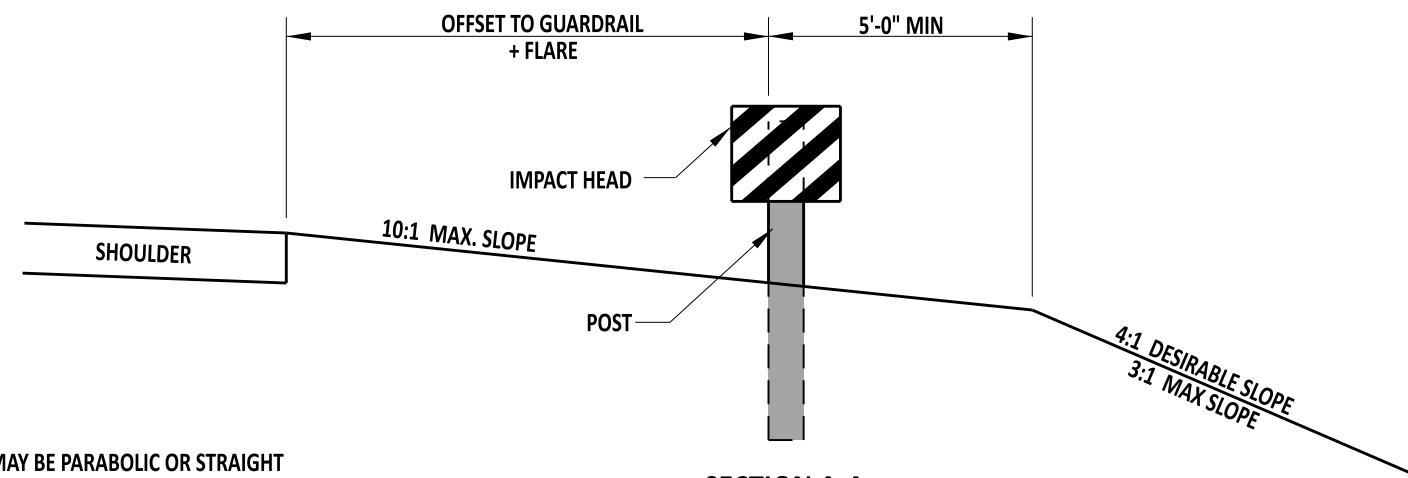
REVIEWED
APPROVED

Mike Lee
DEPUTY DIRECTOR - DESIGN
12/16/2022
DATE
Sherry
CHIEF ENGINEER
12/21/2022
DATE



PLAN VIEW

= NO OBSTRUCTIONS IN SHADED AREA



SECTION A-A

NOTES:

- 1). FLARE SHALL BE BASED ON MANUFACTURER REQUIREMENTS. FLARE MAY BE PARABOLIC OR STRAIGHT BASED ON MANUFACTURER'S SPECIFICATIONS.
- 2). THIS DETAIL WAS SOLELY CREATED TO SHOW THE GRADING REQUIRED FOR THIS TYPE OF GUARDRAIL END TREATMENT AND IS APPLICABLE IN THE ABSENCE OF SPECIFIC GRADING REQUIREMENTS FROM THE GUARDRAIL END TREATMENT MANUFACTURER.
- 3). THE GUARDRAIL END TREATMENT SHALL BE INSTALLED AS PER THE MANUFACTURER'S REQUIREMENTS.
- 4). IF CURB IS PRESENT, DEPRESS THE CURB TO A MAXIMUM HEIGHT OF 2" WITHIN THE LIMITS OF THE END TREATMENT AND THROUGHOUT THE LENGTH OF THE TAPER GRADING.
- 5.) GUARDRAIL REFLECTORS SHALL NOT BE PLACED WITHIN THE LIMITS OF THE GUARDRAIL END TREATMENT.



Andrew Shott
ENGINEERING SUPPORT
RECOMMENDED
12/13/2022
DATE

GRADING FOR GUARDRAIL END TREATMENT ATTENUATOR, TYPE 2

STANDARD NO. B-2 (2022)

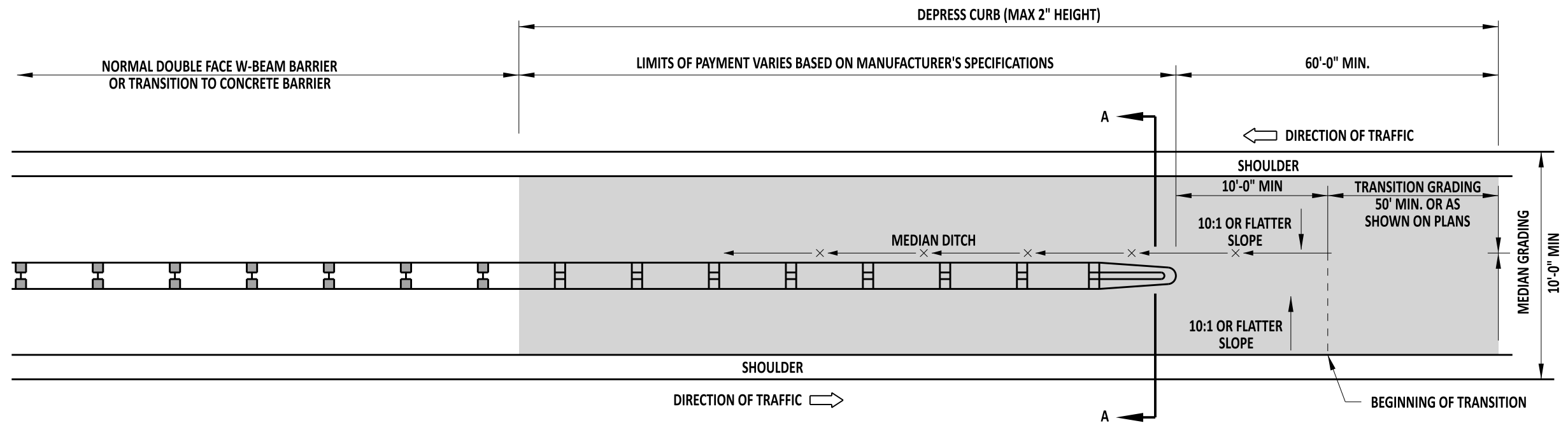
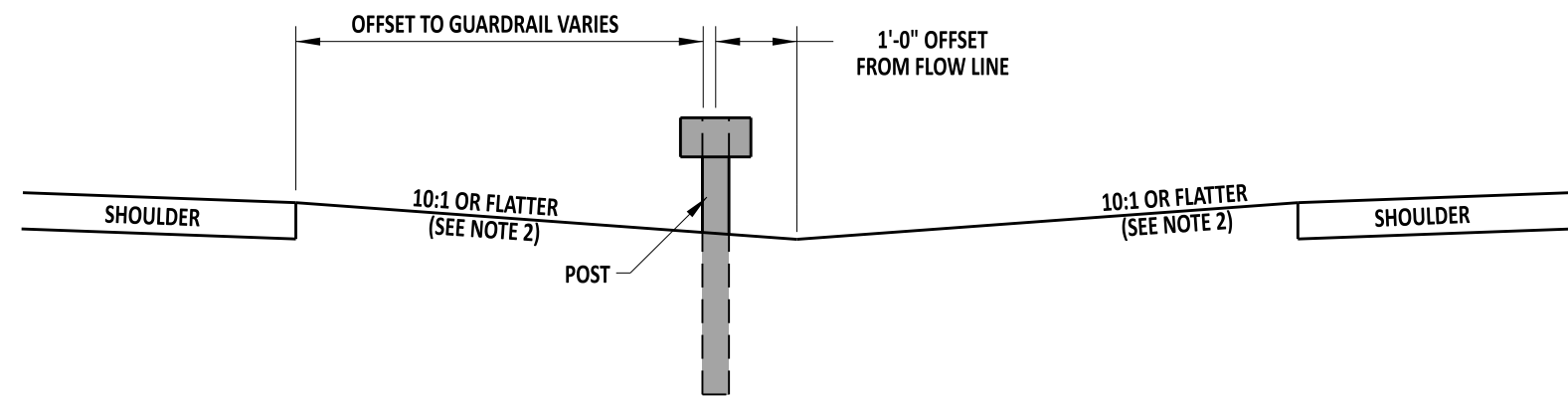
SHT. 2 OF 3

REVIEWED

Mike Lee
DEPUTY DIRECTOR - DESIGN
12/16/2022
DATE

APPROVED

Sherry
CHIEF ENGINEER
12/21/2022
DATE

**PLAN VIEW****SECTION A-A****GRADING FOR END TREATMENT ATTENUATOR, TYPE 3****NOTES:**

- 1). THIS DETAIL WAS SOLELY CREATED TO SHOW THE GRADING REQUIRED FOR THIS TYPE OF GUARDRAIL END TREATMENT AND IS APPLICABLE IN THE ABSENCE OF SPECIFIC GRADING REQUIREMENTS FROM THE GUARDRAIL END TREATMENT MANUFACTURER.
- 2). 6:1 OR FLATTER GRADING IS ALLOWABLE WHEN THE BARRIER IS LOCATED 12' OR MORE FROM THE OUTSIDE EDGE OF THE SHOULDER.
- 3). THIS END TREATMENT CAN ALSO BE USED IN RAMP GOES OR OTHER AREAS WHERE TWO RAILS OF W-BEAM COME TOGETHER AND TERMINATE WITH ONE END TREATMENT.
- 4). WHEN OPPOSING ROADWAYS HAVE EQUAL ELEVATIONS THE TRAFFIC BARRIER SYSTEM SHOULD BE PLACED ON THE OPPOSITE SIDE OF THE DITCH LINE FROM APPROACHING TRAFFIC.
- 5). THE GUARDRAIL END TREATMENT SHALL BE INSTALLED AS PER THE MANUFACTURER'S REQUIREMENTS.
- 6). IF CURB IS PRESENT, DEPRESS THE CURB TO A MAXIMUM HEIGHT OF 2" WITHIN THE LIMITS OF THE END TREATMENT AND THROUGHOUT THE LENGTH OF THE TRANSITION GRADING.
- 7.) GUARDRAIL REFLECTORS SHALL NOT BE PLACED WITHIN THE LIMITS OF THE GUARDRAIL END TERMINAL.



Andrew Shott
ENGINEERING SUPPORT
RECOMMENDED
12/13/2022
DATE

GRADING FOR GUARDRAIL END TREATMENT ATTENUATOR, TYPE 3STANDARD NO. **B-2 (2022)**SHT. **3** OF **3**

REVIEWED

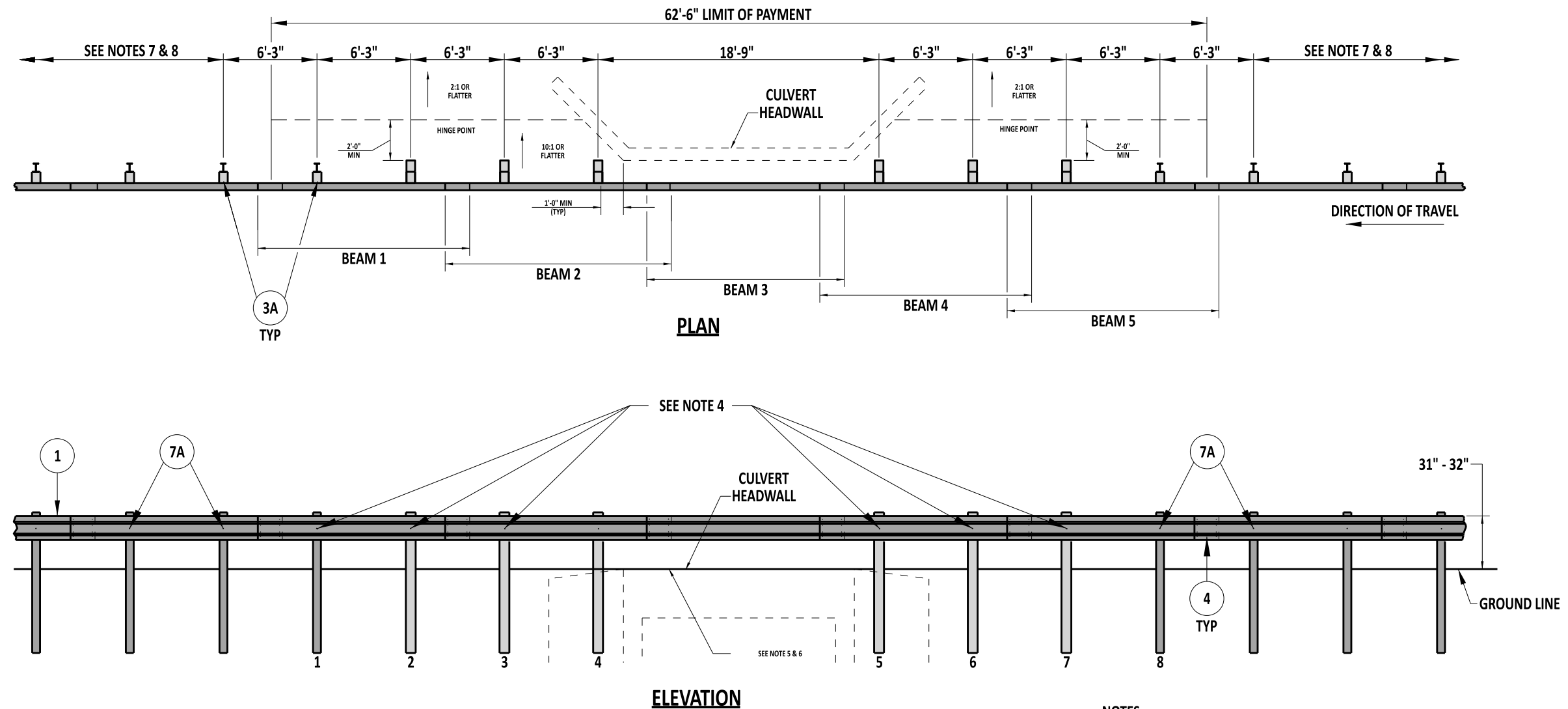
Mike Lee
DEPUTY DIRECTOR - DESIGN

12/16/2022
DATE

APPROVED

Shrey
CHIEF ENGINEER

12/21/2022
DATE

**NOTES:**

- 1). FOR OMITTING ONE POST, SEE DETAIL B-1, SHEET 4.
- 2). PLACE GUARDRAIL DELINEATORS IN ACCORDANCE WITH DETAIL B-13, SHEET 9.
- 3). POSTS 1 & 8 ARE TO BE W6x9, 6'-0" STEEL POSTS. POSTS 2 THROUGH 7 ARE TO BE TYPE 31 LONG, WOOD BREAKAWAY POSTS.
- 4). THE RAIL SHALL BE ATTACHED AT POSTS 2 THROUGH 7 WITH A $\frac{5}{8}$ " x 22" GUARDRAIL BOLT, STEEL WASHER, AND RECESS NUT.
- 5). WHERE THE HEADWALL PROJECTION IS LESS THAN 2" ABOVE GRADE, THE BACK OF THE CRT POST MAY BE ALIGNED WITH THE NEAR SIDE OF THE HEADWALL.
- 6). WHERE THE STRUCTURE PROJECTION IS GREATER THAN 2" ABOVE GRADE, THE INSIDE FACE OF THE HEADWALL SHALL BE A MINIMUM OF 8'-0" FROM THE FACE OF THE W-BEAM.
- 7). PROVIDE AT LEAST 50'-0" OF TYPE 1-31 GUARDRAIL, INCLUDING END ANCHORAGE, TO ENSURE INTENDED FUNCTION.
- 8). PROVIDE AT LEAST 37'-6" OF TANGENT 1-31 GUARDRAIL BEFORE INTRODUCING GUARDRAIL FLARES IN ACCORDANCE WITH THE RATES SHOWN IN STANDARD DETAIL B-1, SHEET 1 TO ENSURE INTENDED FUNCTION.
- 9). IF CURB IS USED, IT SHALL BE A MAX 2" HEIGHT WITHIN THE LIMIT OF PAYMENT OF THE GUARDRAIL OVER CULVERT.
- 10). MASH COMPLIANT SYSTEM - FHWA ELIGIBILITY LETTER B-189.



Andrew Shott
ENGINEERING SUPPORT
RECOMMENDED
DATE 12/13/2022

GUARDRAIL OVER CULVERTS, TYPE 2-31

STANDARD NO.

B-3 (2022)

SHT. 1

OF 2

REVIEWED

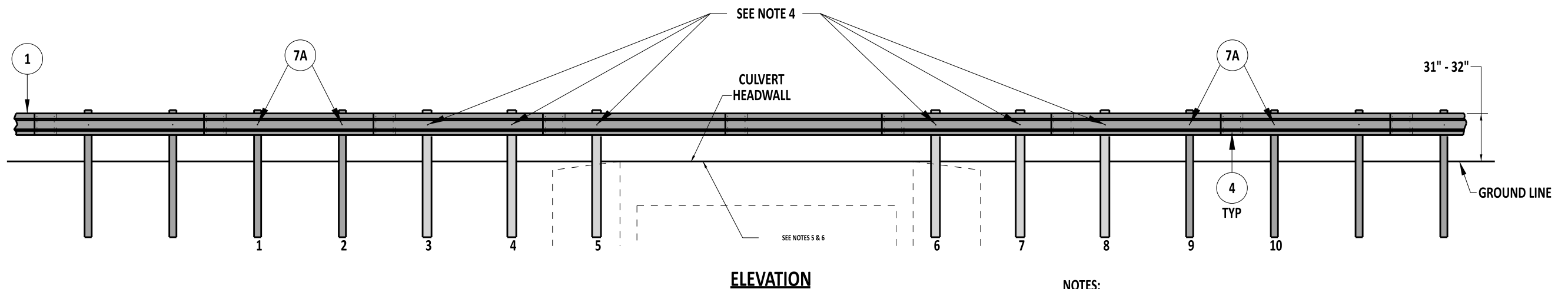
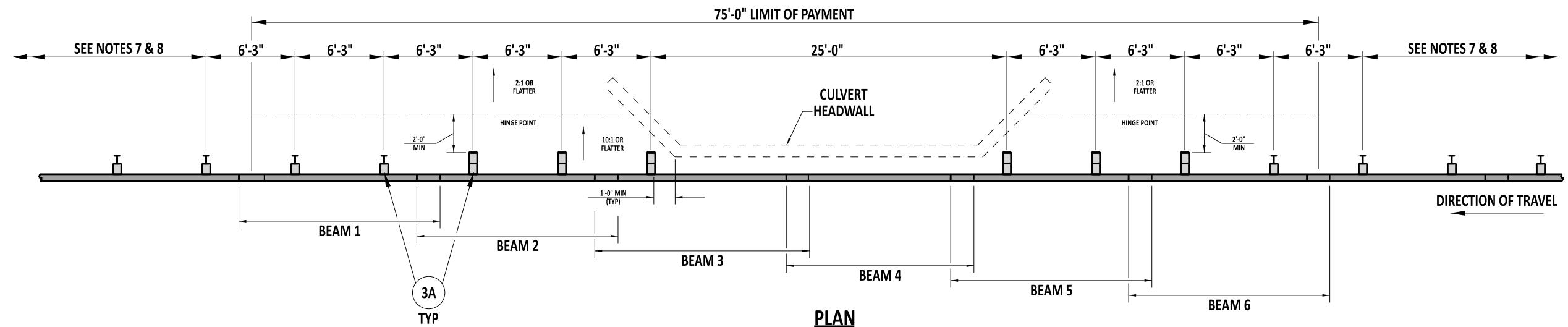
Mike Lee
DEPUTY DIRECTOR - DESIGN

12/16/2022
DATE

APPROVED

Shrey
CHIEF ENGINEER

12/21/2022
DATE



NOTES:

- 1). FOR OMITTING ONE POST, SEE DETAIL B-1, SHEET 4.
- 2). PLACE GUARDRAIL DELINEATORS IN ACCORDANCE WITH DETAIL B-13, SHEET 9.
- 3). POSTS 1, 2, 9, & 10 ARE TO BE W6x9, 6'-0" STEEL POSTS. POSTS 3 THROUGH 8 ARE TO BE TYPE 31 LONG, WOOD BREAKAWAY POSTS.
- 4). THE RAIL SHALL BE ATTACHED AT POSTS 3 THROUGH 8 WITH A $\frac{5}{8}$ " x 22" GUARDRAIL BOLT, STEEL WASHER, AND RECESS NUT.
- 5). WHERE THE HEADWALL PROJECTION IS LESS THAN 2" ABOVE GRADE, THE BACK OF THE CRT POST MAY BE ALIGNED WITH THE NEAR SIDE OF THE HEADWALL.
- 6). WHERE THE STRUCTURE PROJECTION IS GREATER THAN 2" ABOVE GRADE, THE INSIDE FACE OF THE HEADWALL SHALL BE A MINIMUM OF 8'-0" FROM THE FACE OF THE W-BEAM.
- 7). PROVIDE AT LEAST 50'-0" OF TYPE 1-31 GUARDRAIL, INCLUDING END ANCHORAGE, TO ENSURE INTENDED FUNCTION.
- 8). PROVIDE AT LEAST 37'-6" OF TANGENT 1-31 GUARDRAIL BEFORE INTRODUCING GUARDRAIL FLARES IN ACCORDANCE WITH THE RATES SHOWN IN STANDARD DETAIL B-1, SHEET 1 TO ENSURE INTENDED FUNCTION.
- 9). IF CURB IS USED, IT SHALL BE A MAX 2" HEIGHT WITHIN THE LIMIT OF PAYMENT OF THE GUARDRAIL OVER CULVERT.
- 10). MASH COMPLIANT SYSTEM - FHWA ELIGIBILITY LETTER B-189.



Andrew Shott
ENGINEERING SUPPORT
RECOMMENDED
12/13/2022
DATE

GUARDRAIL OVER CULVERTS, TYPE 3-31

STANDARD NO.

B-3 (2022)

SHT. 2

OF 2

REVIEWED

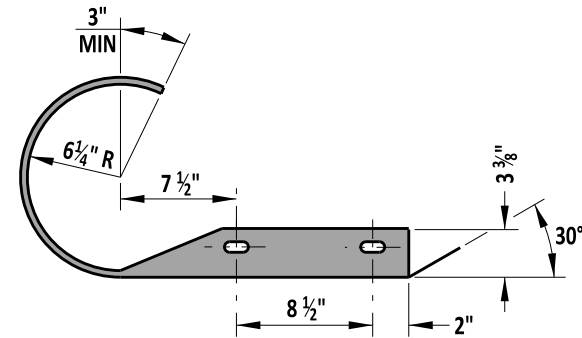
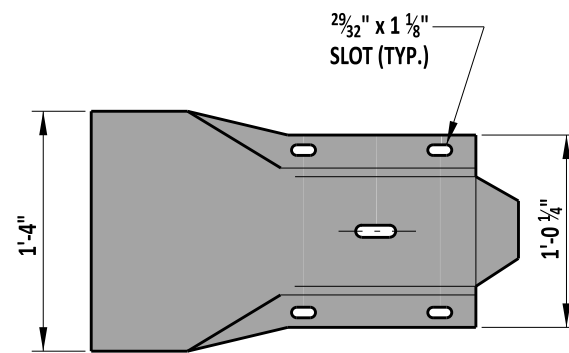
12/16/2022
DEPUTY DIRECTOR - DESIGN

DATE

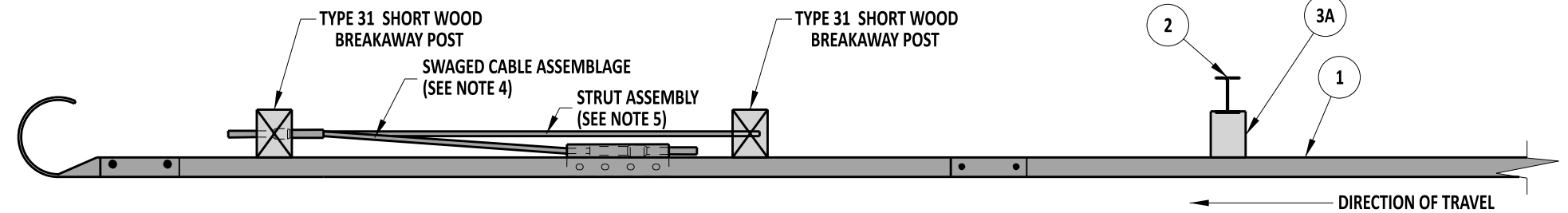
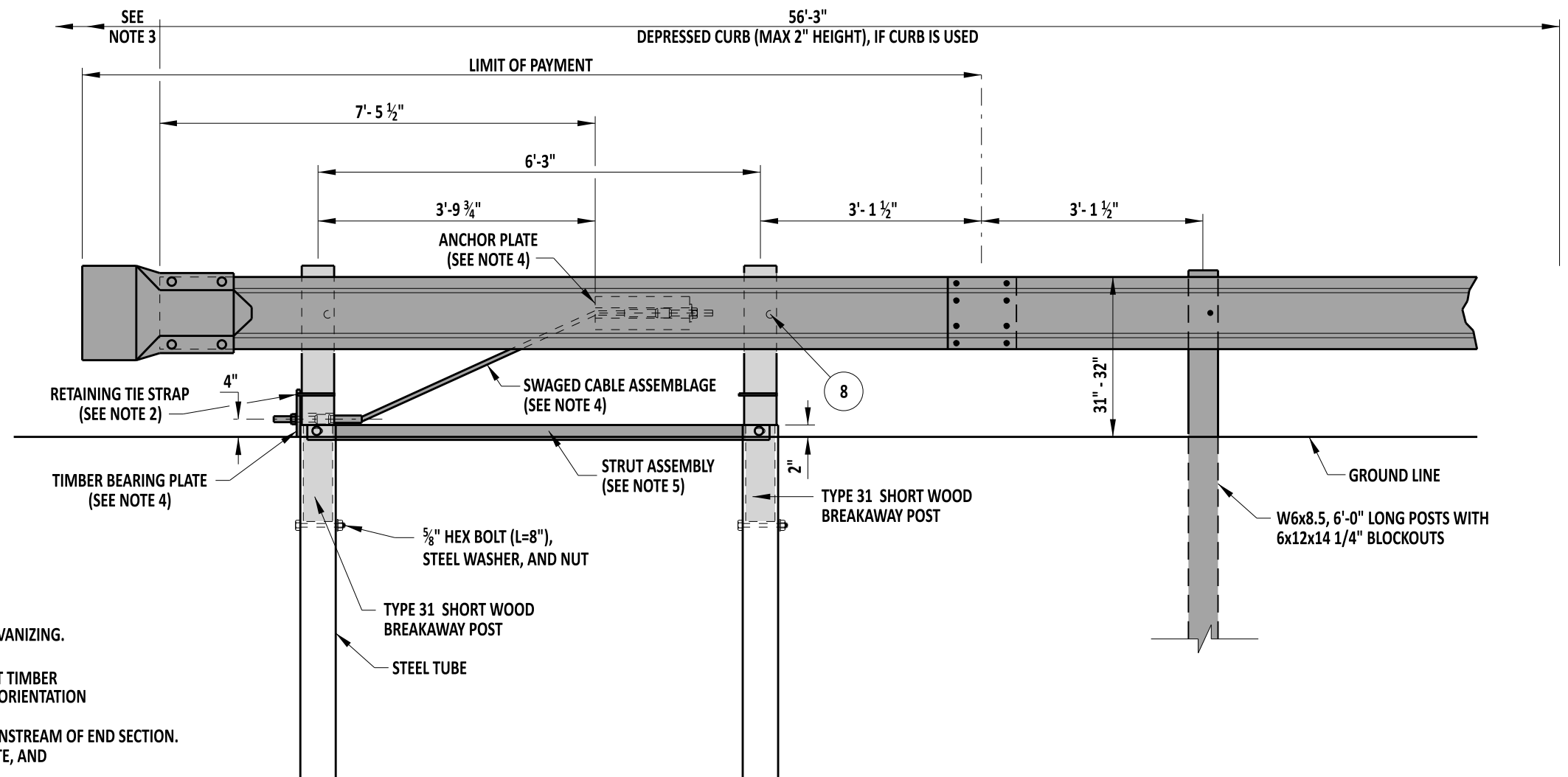
APPROVED

12/21/2022
CHIEF ENGINEER

DATE

**END SECTION PLAN****END SECTION ELEVATION****NOTES:**

- 1). ADDITIONAL HOLES FOR ANCHOR PLATE SHALL BE DRILLED PRIOR TO GALVANIZING. (SEE STANDARD HARDWARE SHEET FOR HOLE SPACING INFORMATION).
- 2). PLACE A 1/2" WIDE GALVANIZED RETAINING TIE STRAP AROUND THE SHORT TIMBER BREAKAWAY POST AND TIMBER BEARING PLATE TO ENSURE THE PROPER ORIENTATION OF THE TIMBER BEARING PLATE.
- 3). IF CURB IS USED, EXTEND DEPRESSED CURB (MAX 2" HEIGHT) 50'-0" DOWNSTREAM OF END SECTION.
- 4). REFER TO DETAIL B-13, SHEET 8 OF 12, FOR SWAGED CABLE, ANCHOR PLATE, AND TIMBER BEARING PLATE DETAILS.
- 5). REFER TO DETAIL B-13, SHEET 11 OF 12, FOR STRUT ASSEMBLY DETAIL.
- 6). MASH COMPLIANT SYSTEM - FHWA ELIGIBILITY LETTER B-256
- 7). THIS SYSTEM SHALL NOT BE USED WHERE END ON IMPACTS ARE EXPECTED. IT IS SOLELY DESIGNED TO ACT AS A DOWNSTREAM END ANCHOR.

**PLAN VIEW****ELEVATION VIEW**

Andrew Shott
ENGINEERING SUPPORT
RECOMMENDED
DATE 12/13/2022

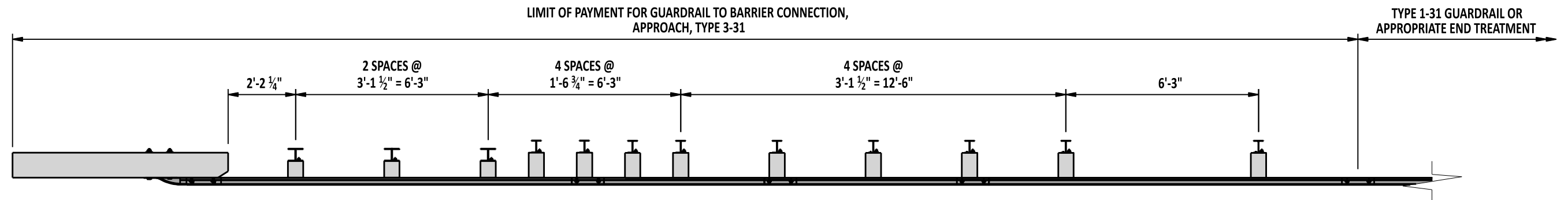
END ANCHORAGE, TYPE 31STANDARD NO. **B-4 (2022)**SHT. **1** OF **1**

REVIEWED

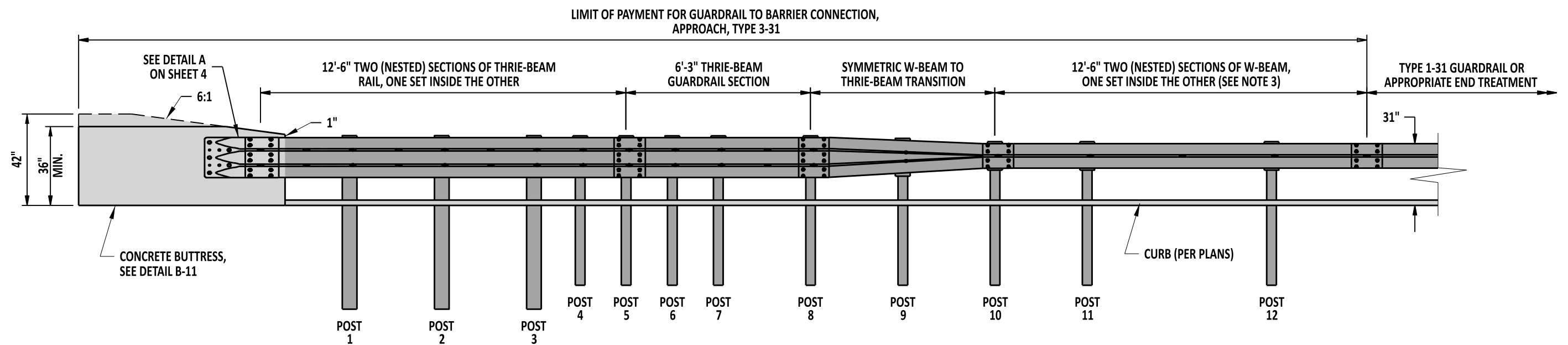
Mike Lee
DEPUTY DIRECTOR - DESIGN
DATE 12/16/2022

APPROVED

Shrey
CHIEF ENGINEER
DATE 12/21/2022



PLAN VIEW



ELEVATION VIEW

NOTES:

- 1). THIS GUARDRAIL-TO-BARRIER CONNECTION IS TO BE USED IN COMBINATION WITH DETAIL B-11, ON NEW CONSTRUCTION ONLY.
- 2). SEE SHEETS 2-4 FOR ADDITIONAL DETAILS.
- 3). ONLY USE A SINGLE PIECE OF W-BEAM IN THIS SECTION WHEN CURB IS NOT USED.
- 4). POSTS NOT DETAILED ON SHEETS 2 AND 3 ARE TO USE STANDARD POSTS AND BLOCKS.
- 5). MASH COMPLIANT SYSTEM - DESIGN BASED ON MWRSF TEST REPORT TRP 03-367-19.



Andrew Shott
ENGINEERING SUPPORT
RECOMMENDED
12/13/2022
DATE

GUARDRAIL TO BARRIER CONNECTION, APPROACH, TYPE 3-31

STANDARD NO.

B-10 (2022)

SHT. 1

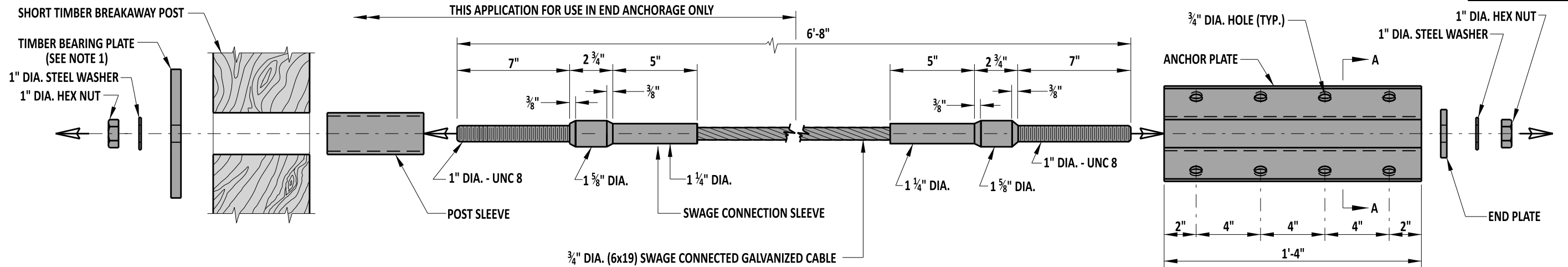
OF 4

REVIEWED

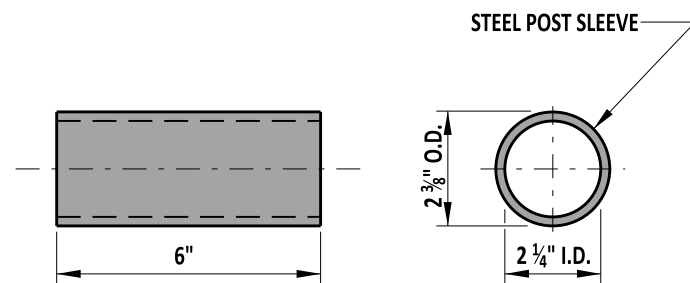
12/16/2022
DEPUTY DIRECTOR - DESIGN
DATE

APPROVED

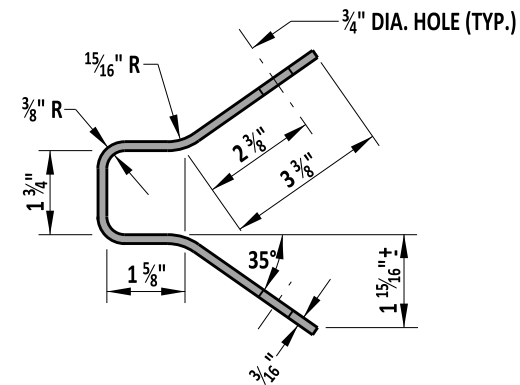
12/21/2022
CHIEF ENGINEER
DATE



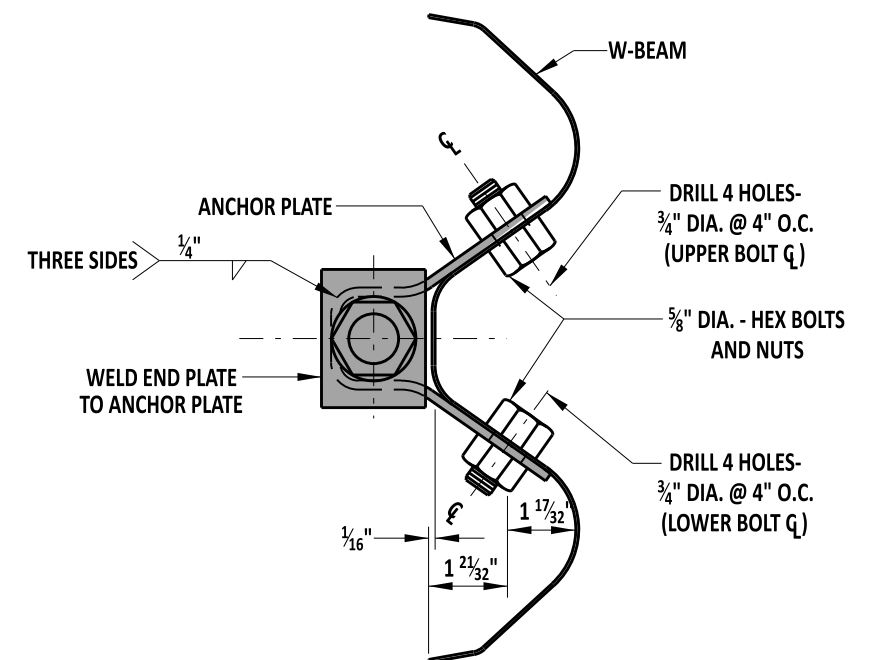
SWAGED CABLE ASSEMBLY AND RELATED HARDWARE ASSEMBLY



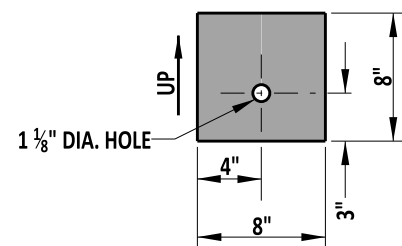
POST SLEEVE



SECTION A-A

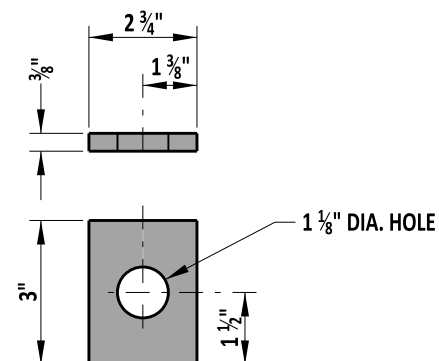


ANCHOR PLATE TO W-BEAM CONNECTION DETAIL



TIMBER BEARING PLATE

5/8" THICKNESS



END PLATE

3/8" THICKNESS

NOTES:

- 1). PLACE A 1/2" WIDE GALVANIZED RETAINING TIE STRAP AROUND THE SHORT TIMBER BREAKAWAY POST AND TIMBER BEARING PLATE TO ENSURE PROPER ORIENTATION OF THE TIMBER BEARING PLATE.
- 2). TIGHTEN ASSEMBLY UNTIL CABLE IS TAUGHT.
- 3). ALL HOLES SHALL BE DRILLED PRIOR TO GALVANIZING.



Andrew Shott
ENGINEERING SUPPORT
RECOMMENDED
12/13/2022
DATE

END ANCHORAGE HARDWARE

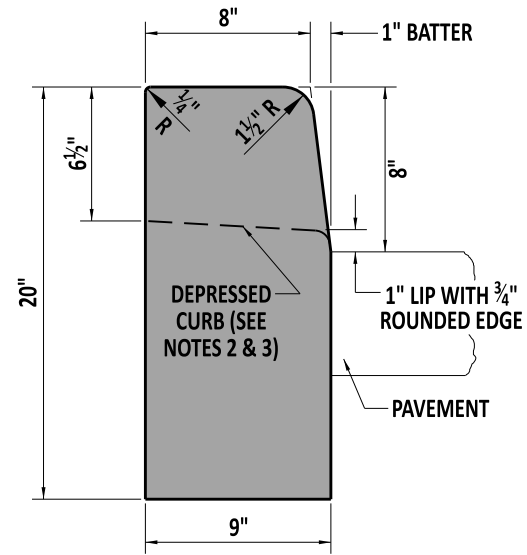
STANDARD NO. B-13 (2022) SHT. 8 OF 12

REVIEWED

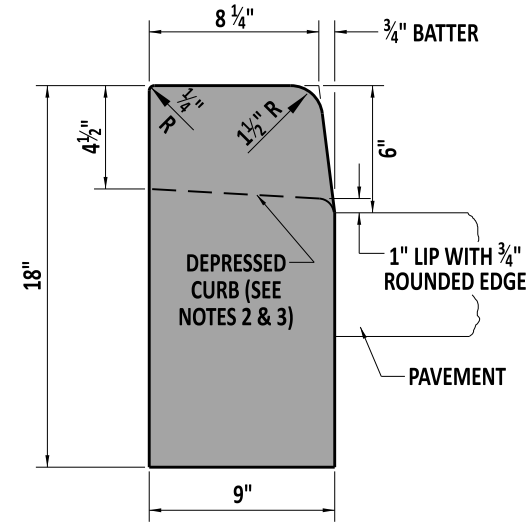
12/16/2022
DEPUTY DIRECTOR - DESIGN
DATE

APPROVED

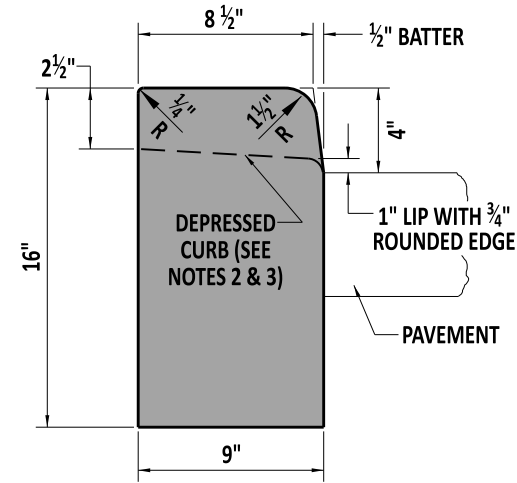
12/21/2022
CHIEF ENGINEER
DATE



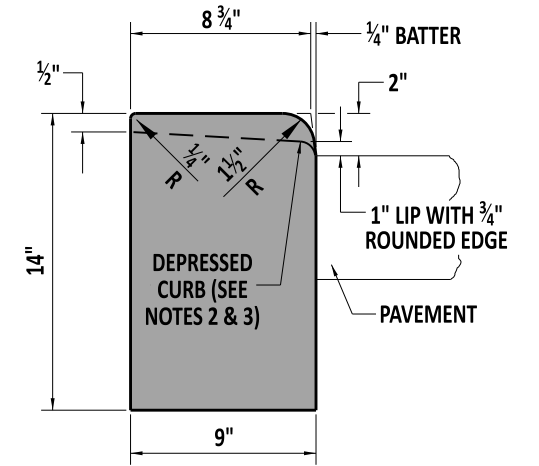
PCC CURB
TYPE 1-8



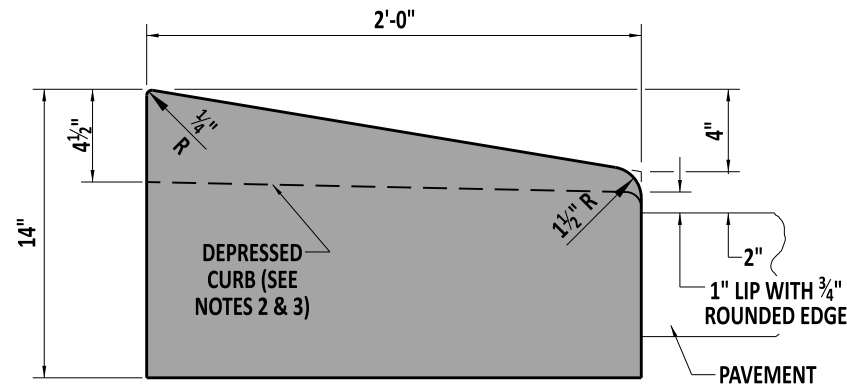
PCC CURB
TYPE 1-6



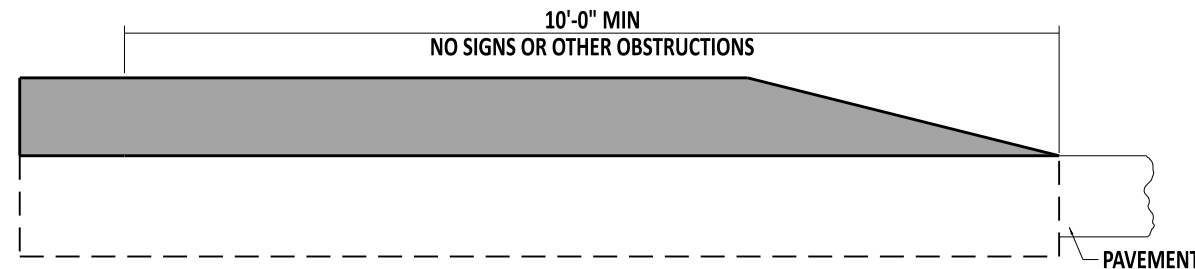
PCC CURB
TYPE 1-4



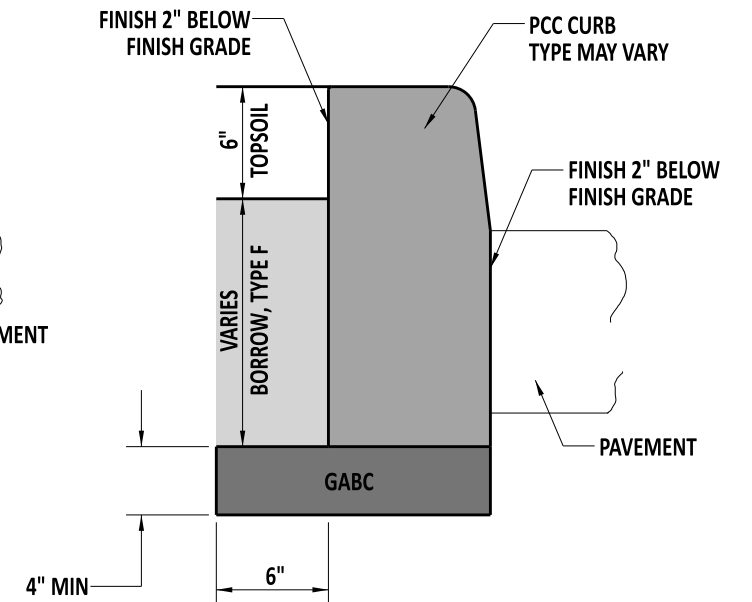
PCC CURB
TYPE 1-2



PCC CURB
TYPE 2



TYPICAL TAPER SECTION
AT NOSE OF MEDIANS



TYPICAL PCC CURB SECTION

NOTES:

- 1). WHEN PCC CURB OR INTEGRAL PCC CURB AND GUTTER IS PLACED ADJACENT TO PORTLAND CEMENT CONCRETE PAVEMENT, CONSTRUCT THE JOINT AS PER THE LONGITUDINAL JOINT SEALANT DETAIL ON DETAIL P-2, SHEET 3. USE APPROVED JOINT FILLER TO SEAL. WORK TO BE PAID UNDER RESPECTIVE CURB AND GUTTER ITEM.
- 2). THE DEPRESSED CURB DIMENSIONS (INCLUDING 1" LIP) ON THIS SHEET ARE FOR USE AT ENTRANCES ONLY. FOR CURB DEPRESSIONS AT PEDESTRIAN CONNECTION, SEE NOTE 3.
- 3). AT PEDESTRIAN CONNECTIONS, DEPRESS CURB FLUSH WITH THE PAVEMENT (WITH NO LIP). SLOPE THE TOP OF THE CURB TO MATCH THE RUNNING SLOPE OF THE ADJACENT PEDESTRIAN CONNECTION.
- 4). DEPRESS CURB FLUSH WITH PAVEMENT OR ADJACENT AREA TO ALL CORNER RADII OF TRIANGULAR ISLANDS AND MEDIANS, TAPERING BACK TO FULL HEIGHT AT A RATE OF 4:1.
- 5). TAPER END OF CURB RUNS NOT PART OF AN ISLAND OR MEDIAN FLUSH WITH PAVEMENT OR ADJACENT AREA AT A RATE OF 12:1.
- 6). INSTALL TYPE IV POLYURETHANE-BONDED RECYCLED RUBBER EXPANSION MATERIAL BETWEEN THE FACE OF CURB AND EDGE OF PCC PAVEMENT.



Andrew Shott
ENGINEERING SUPPORT
RECOMMENDED
12/13/2022
DATE

**PCC CURB, TYPICAL CURB SECTION,
AND TYPICAL TAPER SECTION AT NOSE OF MEDIANS**

STANDARD NO. C-1 (2022)

SHT. 1 OF 4

REVIEWED

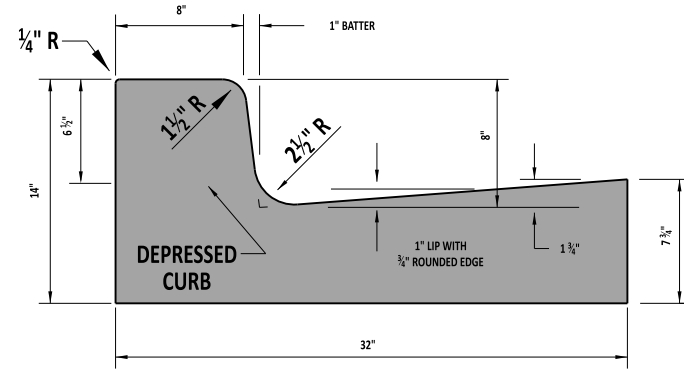
Mike Lee
DEPUTY DIRECTOR - DESIGN

12/16/2022
DATE

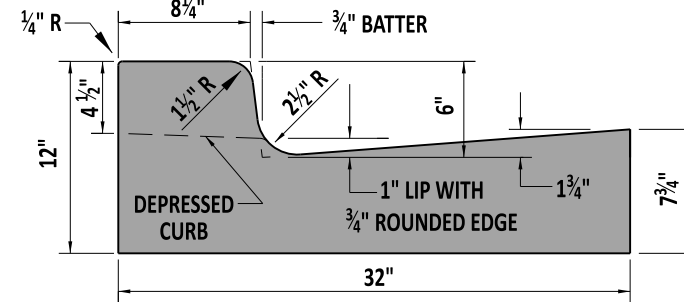
APPROVED

Shrey
CHIEF ENGINEER

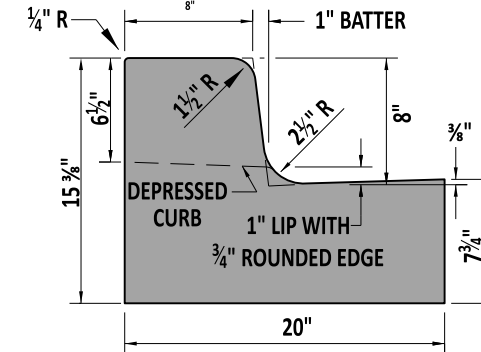
12/21/2022
DATE



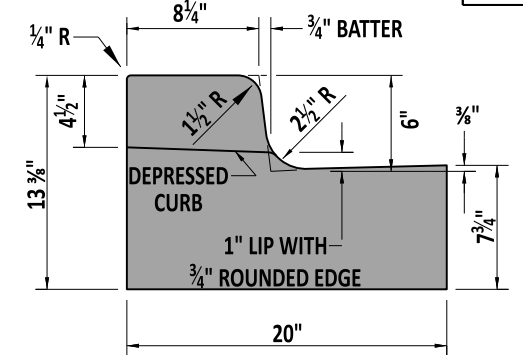
INTEGRAL PCC CURB AND GUTTER
TYPE 1-8



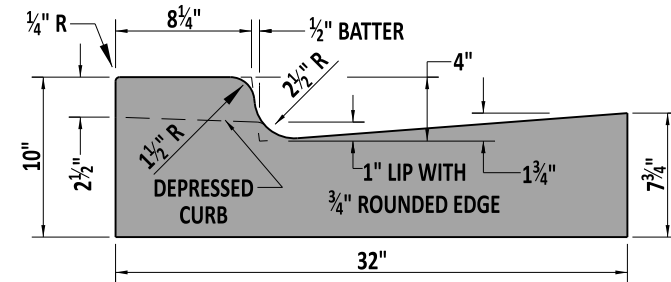
INTEGRAL PCC CURB AND GUTTER
TYPE 1-6



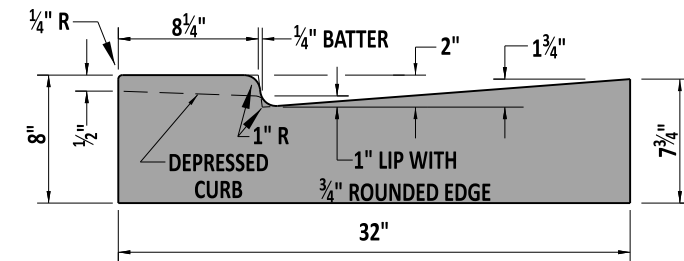
INTEGRAL PCC CURB AND GUTTER
TYPE 3-8



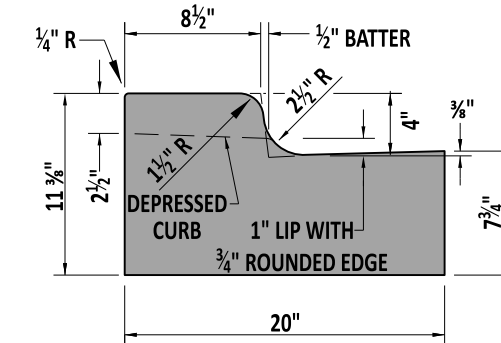
INTEGRAL PCC CURB AND GUTTER
TYPE 3-6



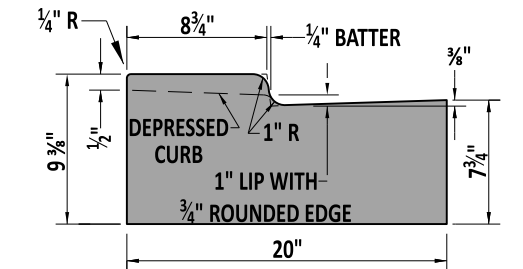
INTEGRAL PCC CURB AND GUTTER
TYPE 1-4



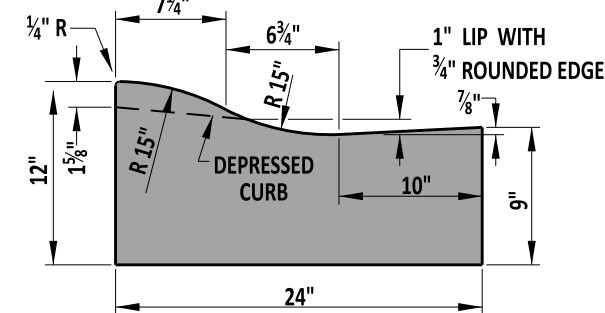
INTEGRAL PCC CURB AND GUTTER
TYPE 1-2



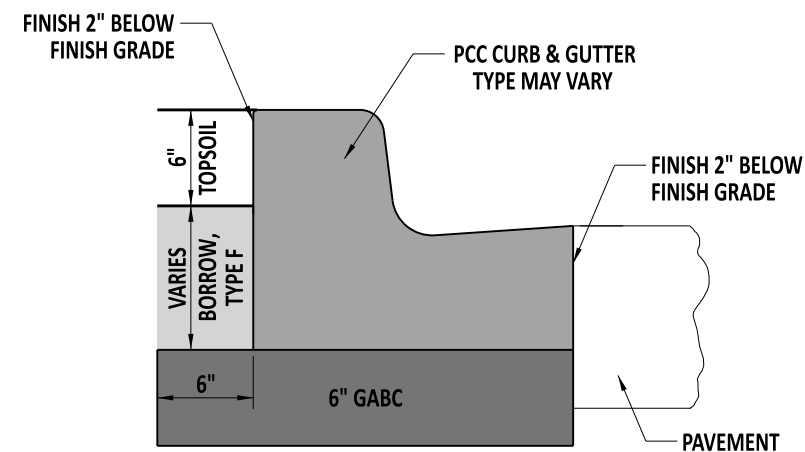
INTEGRAL PCC CURB AND GUTTER
TYPE 3-4



INTEGRAL PCC CURB AND GUTTER
TYPE 3-2



INTEGRAL PCC CURB AND GUTTER
TYPE 2



TYPICAL PCC CURB AND GUTTER SECTION

NOTES:

- 1). WHEN PCC CURB OR INTEGRAL PCC CURB AND GUTTER IS PLACED ADJACENT TO PORTLAND CEMENT CONCRETE PAVEMENT, CONSTRUCT THE JOINT AS PER THE LONGITUDINAL JOINT SEALANT DETAIL ON DETAIL P-2, SHEET 3 OF 5. USE APPROVED JOINT FILLER TO SEAL. WORK TO BE PAID UNDER RESPECTIVE CURB AND GUTTER ITEM.
- 2). THE DEPRESSED CURB DIMENSIONS (INCLUDING 1" LIP) ON THIS SHEET ARE FOR USE AT ENTRANCES ONLY. FOR CURB DIMENSIONS AT PEDESTRIAN CONNECTION, SEE NOTE 3.
- 3). SEE DETAIL C-1, SHEET 3 FOR DEPRESSING AT PEDESTRIAN CONNECTION.
- 4). DEPRESS CURB FLUSH WITH PAVEMENT OR ADJACENT AREA AT LEADING EDGE OF TRIANGULAR ISLANDS, TAPERING BACK TO FULL HEIGHT AT A SLOPE OF 4:1. SEE C-1, SHEET 1 OF 4 FOR TYPICAL SECTION OF TAPER AT NOSE OF MEDIAN ISLANDS.
- 5). DEPRESS END OF CURB RUNS NOT PART OF AN ISLAND OR MEDIAN FLUSH WITH PAVEMENT OR ADJACENT AREA AT A SLOPE OF 12:1.
- 6). INSTALL TYPE IV POLYURETHANE-BONDED RECYCLED RUBBER EXPANSION MATERIAL BETWEEN THE FACE OF CURB AND EDGE OF PCC PAVEMENT.



Andrew Shott
ENGINEERING SUPPORT
RECOMMENDED
DATE 12/13/2022

INTEGRAL PCC CURB & GUTTER

STANDARD NO. C-1 (2022) SHT. 2 OF 4

REVIEWED

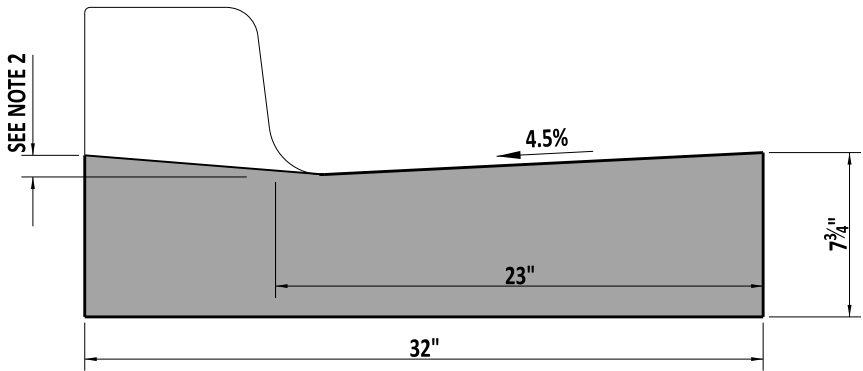
Mike Lee
DEPUTY DIRECTOR - DESIGN
DATE 12/16/2022

APPROVED

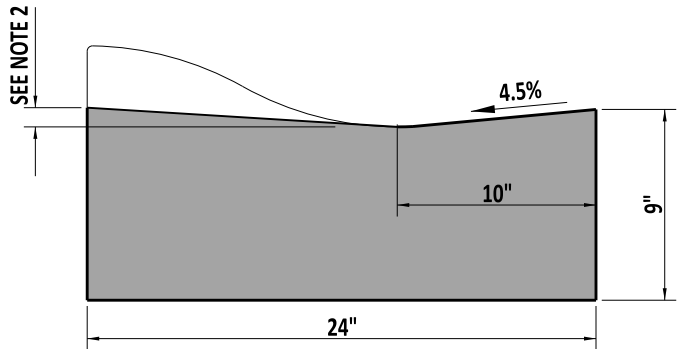
Shrey
CHIEF ENGINEER
DATE 12/21/2022

THIS DETAIL IS TO BE USED ONLY FOR THE SECTIONS OF CURB & GUTTER THAT ARE DIRECTLY IN FRONT OF THE PEDESTRIAN CONNECTIONS. REFER TO
DETAIL C-1, SHEET 2 FOR TYPICAL CURB DIMENSIONS AND FOR DEPRESSING CURB AT ENTRANCES

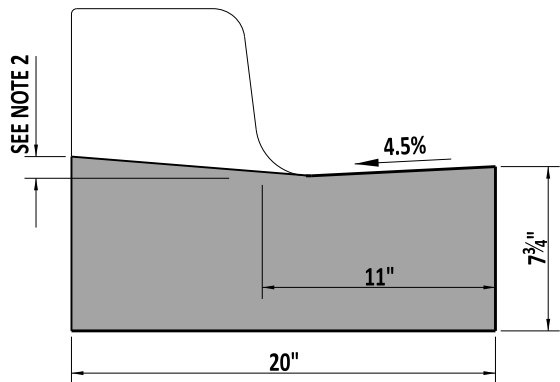
SCALE : NTS



INTEGRAL PCC CURB AND GUTTER
TYPES 1-2 THRU 1-8



INTEGRAL PCC CURB AND GUTTER
TYPE 2



INTEGRAL PCC CURB AND GUTTER
TYPES 3-2 THRU 3-8

NOTES:

- 1). WHEN PCC CURB OR INTEGRAL PCC CURB AND GUTTER IS PLACED ADJACENT TO PORTLAND CEMENT CONCRETE PAVEMENT, CONSTRUCT THE JOINT AS PER THE LONGITUDINAL JOINT SEALANT DETAIL ON DETAIL P-2, SHEET 3. USE APPROVED JOINT FILLER TO SEAL. WORK TO BE PAID UNDER RESPECTIVE CURB AND GUTTER ITEM.
- 2). DEPRESS CURB FLUSH WITH PAVEMENT (WITH NO LIP). SLOPE THE TOP OF THE CURB TO MATCH THE RUNNING SLOPE OF THE ADJACENT PEDESTRIAN CONNECTION.
- 3). WHEN ROADWAY GEOMETRY DEVELOPS SHEET FLOW AWAY FROM THE INTEGRAL PCC CURB AND GUTTER, TRANSITION THE GUTTER TO A 4.5% SLOPE TOWARDS THE ROADWAY. PROVIDE AN ADEQUATE TRANSITION LENGTH TO PROVIDE POSITIVE DRAINAGE.
- 4). SEE TYPICAL CURB AND GUTTER SECTION DETAIL ON DETAIL C-1, SHEET 2 FOR PLACEMENT OF GABC UNDER CURB AND GUTTER.
- 5). TRANSITION FROM NON-COMPLIANT PCC GUTTER SLOPE OVER 15' WHEN LONGITUDINAL SLOPE IS LESS THAN 0.4%.

INTEGRAL PCC CURB AND GUTTER TYPE 3

LONGITUDINAL SLOPE	TRANSITION LENGTH REQUIRED TO MEET 0.003 MIN SLOPE
0.003	N/A
0.004	25
0.005 OR MORE	15

INTEGRAL PCC CURB AND GUTTER TYPE 1

LONGITUDINAL SLOPE	TRANSITION LENGTH REQUIRED TO MEET 0.003 MIN SLOPE
0.003	N/A
0.004	65
0.005	35
0.006	25
0.007	20
0.008 OR MORE	15



Andrew Sholt
ENGINEERING SUPPORT
RECOMMENDED
12/13/2022
DATE

INTEGRAL PCC CURB & GUTTER
(FOR USE AT PEDESTRIAN CONNECTIONS ONLY)

STANDARD NO. C-1 (2022)

SHT. 3 OF 4

REVIEWED

Mike Lee
DEPUTY DIRECTOR - DESIGN

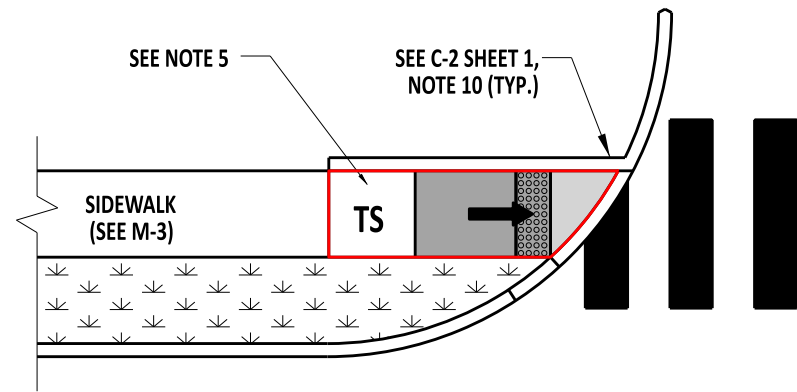
12/16/2022
DATE

APPROVED

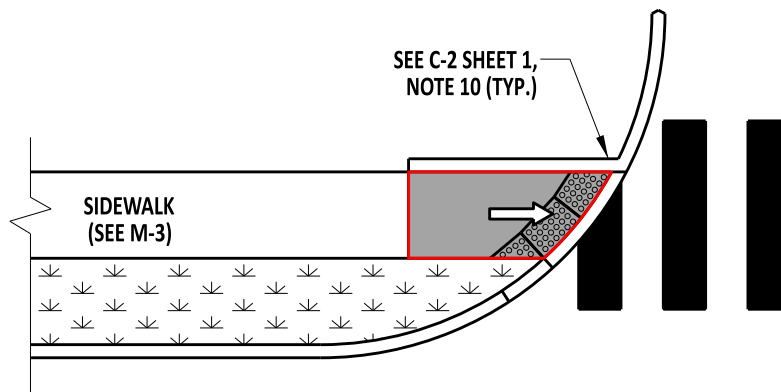
Shrey
CHIEF ENGINEER

12/21/2022
DATE

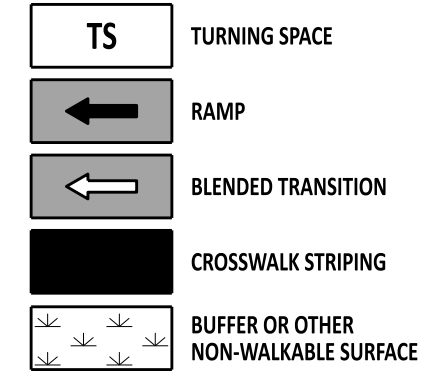
12/13/2022



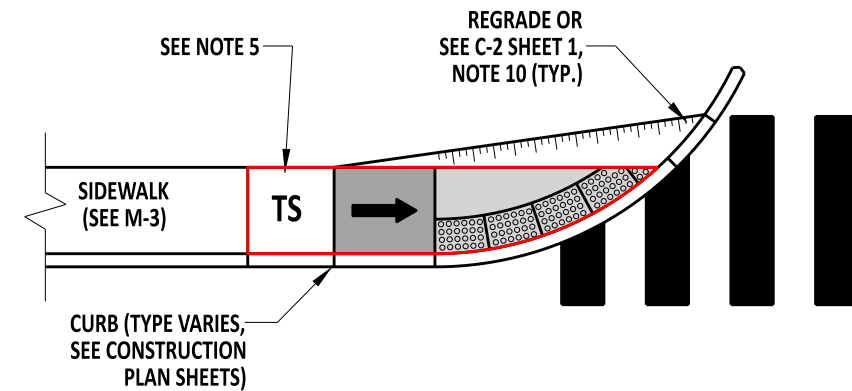
DIRECTIONAL WITH BUFFER STRIP



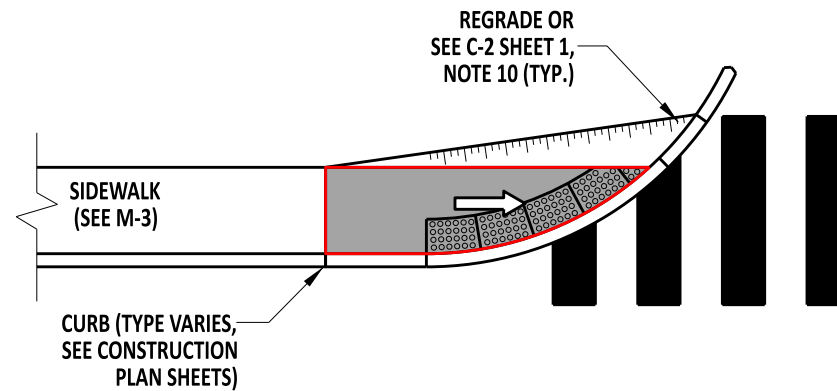
DIRECTIONAL BLENDED TRANSITION WITH BUFFER STRIP



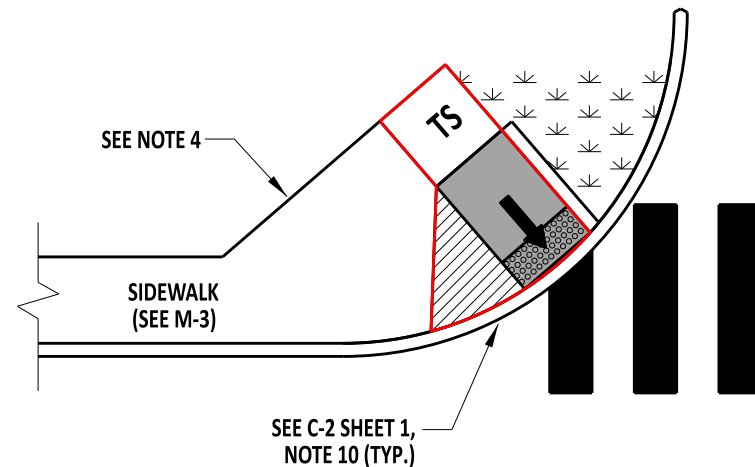
LEGEND



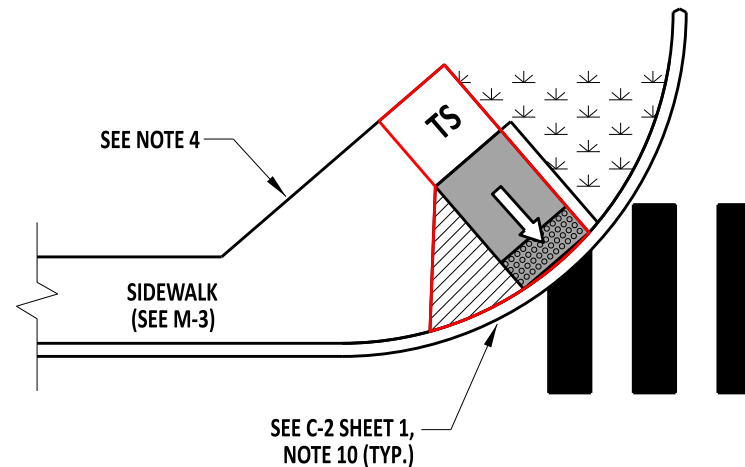
DIRECTIONAL WITH NO BUFFER STRIP
SEE NOTE 6



DIRECTIONAL BLENDED TRANSITION WITH NO BUFFER STRIP
SEE NOTE 6



PERPENDICULAR NON-DIRECTIONAL



PERPENDICULAR NON-DIRECTIONAL BLENDED TRANSITION
PEDESTRIAN CONNECTION, TYPE 1: PERPENDICULAR CURB RAMPS
AND BLENDED TRANSITIONS
SINGLE APPROACH LAYOUT ALTERNATIVES

NOTES:

- 1). SEE C-2, SHEET 1 FOR GENERAL PEDESTRIAN CONNECTION NOTES AND ELEMENT REQUIREMENTS.
- 2). PERPENDICULAR CURB RAMPS HAVE A RAMPED SECTION THAT CUTS THROUGH THE CURB AT AN ANGLE. SEE THE CURRENT DELDOT PAS MANUAL FOR ADDITIONAL INFORMATION.
- 3). A SINGLE PERPENDICULAR CURB RAMP LOCATED ON THE APEX OF A CURB RETURN AND WHICH SERVES TWO SEPARATE CROSSWALKS IS CONSIDERED A DIAGONAL CURB RAMP. INSTALLATION OF A DIAGONAL CURB RAMP REQUIRES APPROVAL FROM THE DEPARTMENT'S OFFICE OF CIVIL RIGHTS.
- 4). LOCATE THE BACK OF PEDESTRIAN PATH IN A MANNER THAT ALLOWS FOR THE INSTALLATION OF A TURNING SPACE AT THE TOP OF THE PERPENDICULAR CURB RAMP.
- 5). A TURNING SPACE IS NOT REQUIRED AT THE TOP OF THE RAMP WHEN NO TURNING MOVEMENT IS REQUIRED TO ENTER OR EXIT THE RAMP.
- 6). USE OF A SINGLE APPROACH PARALLEL CURB RAMP (SEE C-2, SHEET 4) IS PREFERRED TO THE USE OF A SINGLE APPROACH DIRECTIONAL WITH NO BUFFER STRIP PERPENDICULAR TYPE APPLICATION.
- 7). SEE C-2, SHEET 7, NOTE 5 FOR ADDITIONAL INFORMATION ON THE PLACEMENT OF THE DETECTABLE WARNING SURFACE.



Andrew Shott
ENGINEERING SUPPORT
RECOMMENDED
12/13/2022
DATE

PEDESTRIAN CONNECTION, TYPE 1

STANDARD NO. C-2 (2022) SHT. 3 OF 7

REVIEWED

Mike Lee
DEPUTY DIRECTOR - DESIGN

12/16/2022
DATE

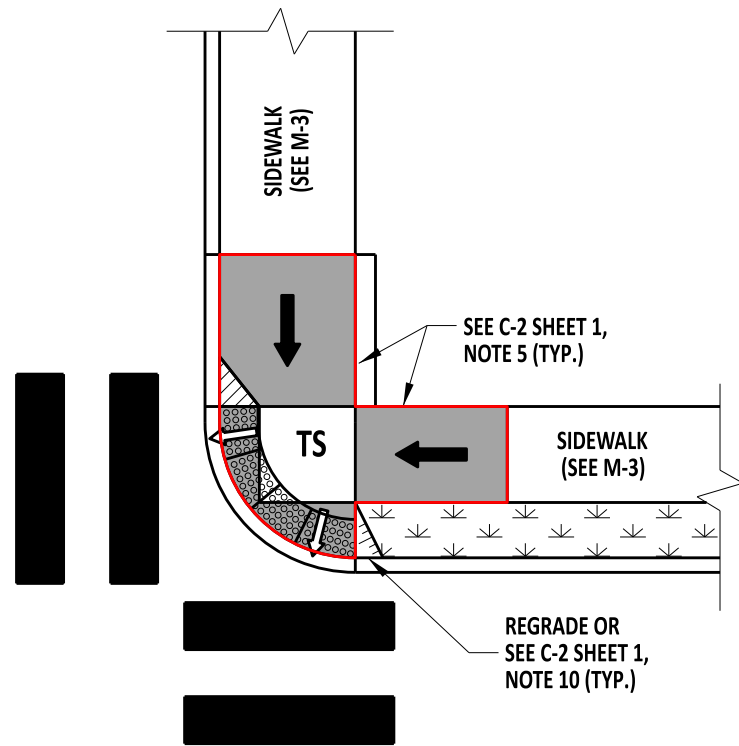
APPROVED

Shrey
CHIEF ENGINEER

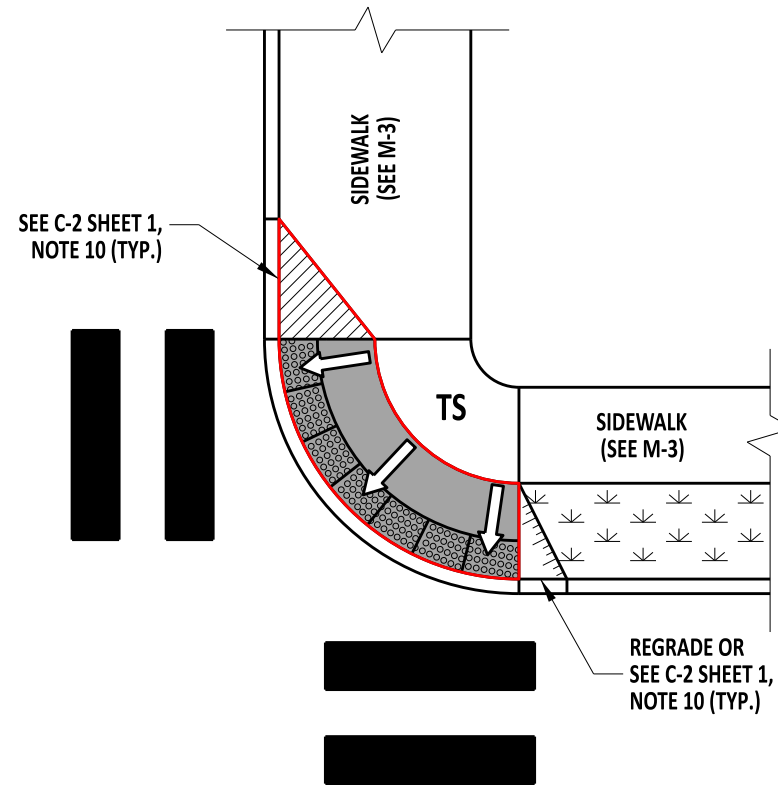
12/21/2022
DATE

LEGEND

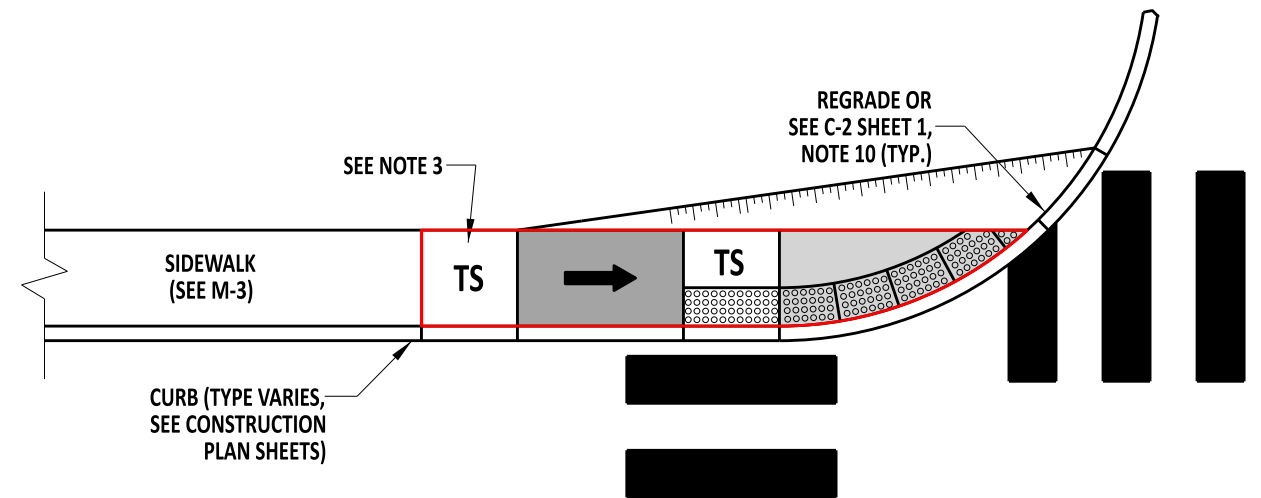
TS	TURNING SPACE
←	RAMP
↔	BLENDED TRANSITION
▬	CROSSWALK STRIPING
▭	TRIANGULAR AREA
▨	DETECTABLE WARNING SURFACE
▧	FLARED SIDE
▭ (red border)	LIMIT OF 6" MIN. SIDEWALK OVER 6" GABC
▨ (dashed)	BUFFER OR OTHER NON-WALKABLE SURFACE



DEPRESSED CORNER WITH SHARED TURNING SPACE



CORNER BLENDED TRANSITION WITH SIDEWALK



SINGLE APPROACH DEPRESSED CORNER

NOTES:

- 1). SEE C-2, SHEET 1 FOR GENERAL PEDESTRIAN CONNECTION NOTES AND ELEMENT REQUIREMENTS.
- 2). PERPENDICULAR AND PARALLEL RAMP CONFIGURATIONS ARE PREFERRED TO DEPRESSED CORNERS. DEPRESSED CORNERS SHOULD ONLY BE USED WHERE SITE CONDITIONS MAKE THEM A MORE APPROPRIATE OPTION, OR WHERE PERPENDICULAR OR PARALLEL RAMPS CANNOT BE INSTALLED DUE TO A PHYSICAL SITE CONSTRAINT. SEE THE CURRENT DELDOT PAS MANUAL FOR ADDITIONAL INFORMATION.
- 3). A TURNING SPACE IS NOT REQUIRED AT THE TOP OF THE RAMP WHEN NO TURNING MOVEMENT IS REQUIRED TO ENTER OR EXIT THE RAMP.

PEDESTRIAN CONNECTION, TYPE 4: DEPRESSED CORNERS



Andrew Shott
ENGINEERING SUPPORT
RECOMMENDED
12/13/2022
DATE

PEDESTRIAN CONNECTION, TYPE 4

STANDARD NO. C-2 (2022) SHT. 6 OF 7

REVIEWED

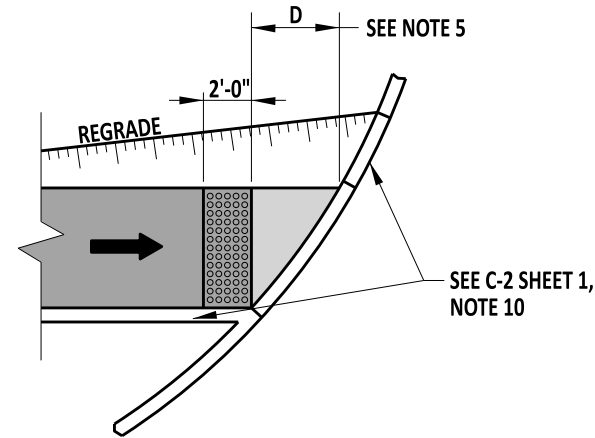
12/16/2022
DEPUTY DIRECTOR - DESIGN
DATE

APPROVED

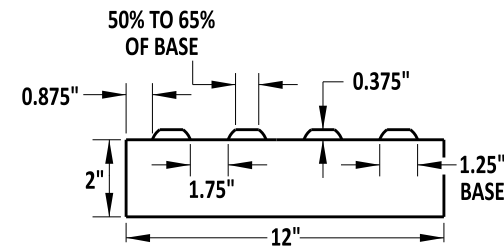
12/21/2022
CHIEF ENGINEER
DATE

LEGEND

TS	TURNING SPACE		TRIANGULAR AREA
	RAMP		DETECTABLE WARNING SURFACE
	BLENDED TRANSITION		FLARED SIDE
	CROSSWALK STRIPING		LIMIT OF 6" MIN. SIDEWALK OVER 6" GABC
	BUFFER OR OTHER NON-WALKABLE SURFACE		



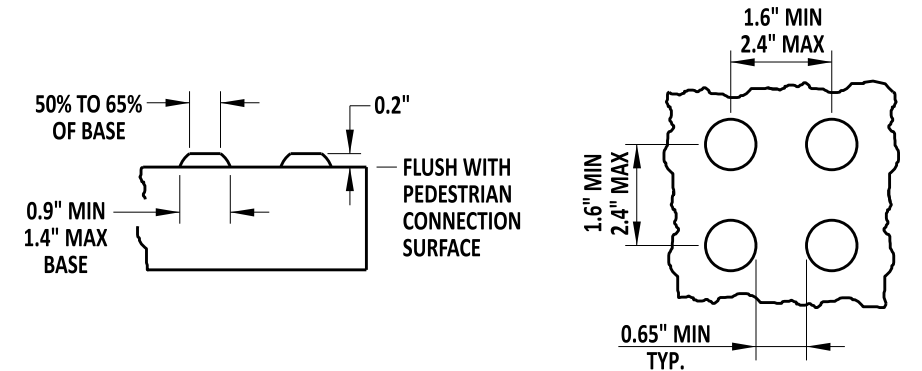
DETECTABLE WARNING SURFACE PLACEMENT FOR PERPENDICULAR CURB RAMPS



DIRECTIONAL TACTILE SURFACE INDICATORS FOR BICYCLE RAMPS



DETECTABLE WARNING SURFACE DETAILS



PEDESTRIAN CONNECTION, TYPE 5

PEDESTRIAN CONNECTION TYPE 5 NOTES:

- SEE C-2, SHEET 1 FOR GENERAL PEDESTRIAN CONNECTION NOTES AND ELEMENT REQUIREMENTS.
- A CUT-THROUGH LEVEL WITH THE STREET IS THE PREFERRED TREATMENT FOR ISLANDS. RAMPS OR BLENDED TRANSITIONS CAN BE USED WHERE THE ISLAND IS OF SUFFICIENT SIZE TO ACCOMMODATE THEM. PROVIDE POSITIVE DRAINAGE FOR EITHER TREATMENT.
- A TURNING SPACE IS REQUIRED TO BE PLACED BETWEEN THE TOP OF RAMPED SEGMENTS.
- THE WIDTH OF THE PEDESTRIAN PATH THROUGH THE MEDIAN SHOULD MATCH THE WIDTH OF THE PEDESTRIAN ACCESS ROUTE WHICH IT CONNECTS. EXPAND THE ENTIRE PEDESTRIAN PATH WIDTH THROUGH THE MEDIAN BY 2'-0" UP TO A WIDTH OF 10'-0" AT LOCATIONS WHERE A PEDESTRIAN PUSHBUTTON IS TO BE PLACED.
- THE CROSS SLOPE IS PERMITTED TO MATCH THAT OF THE ADJACENT STREET. LOCATIONS THAT REQUIRE A CROSS SLOPE TRANSITION SHALL TRANSITION THE CROSS SLOPE UNIFORMLY AT A RATE NOT TO EXCEED 3.0% PER LINEAR FOOT.

DETECTABLE WARNING SURFACE NOTES:

- THE DETECTABLE WARNING SURFACE SHALL EXTEND A MINIMUM OF 2'-0" IN THE DIRECTION OF PEDESTRIAN TRAVEL AND EXTEND THE FULL WIDTH OF THE DEPRESSED CURB.
- THE DETECTABLE WARNING SURFACE SHALL NOT BE PLACED ACROSS A GRADE BREAK.
- WHERE THERE IS NO DEPRESSED CURB AT A MEDIAN CUT-THROUGH OF PEDESTRIAN CONNECTION, INSTALL THE DETECTABLE WARNING SURFACE A MINIMUM OF 8" FROM THE PAVEMENT EDGE.
- THE DETECTABLE WARNING SURFACE MAY BE OMITTED WITH APPROVAL OF THE ENGINEER AT CUT-THROUGH LOCATIONS WHERE THE DETECTABLE WARNING SURFACE WILL BE SEPARATED BY 2'-0" OR LESS.
- PLACE DETECTABLE WARNING SURFACES AS FOLLOWS:
 - PERPENDICULAR CURB RAMPS - SEE ABOVE FIGURE FOR PERPENDICULAR CURB RAMP APPLICATIONS. WHERE D IS LESS THAN OR EQUAL TO 5'-0", PLACE THE DETECTABLE WARNING SURFACE PERPENDICULAR TO THE RAMP AT THE BOTTOM GRADE BREAK. WHERE D IS GREATER THAN 5'-0", PLACE AT THE BACK OF CURB.
 - PARALLEL CURB RAMPS - PLACE AT THE BACK OF CURB ALONG THE ENTIRE LENGTH OF THE DEPRESSED CURB.
 - DEPRESSED CORNERS - PLACE AT THE BACK OF CURB ALONG THE ENTIRE LENGTH OF THE DEPRESSED CURB.
- PLACE DIRECTIONAL TACTILE SURFACE INDICATORS ADJACENT TO THE SHARED USE PATH.



Andrew Shott
ENGINEERING SUPPORT
RECOMMENDED
12/13/2022
DATE

DWS PLACEMENT AND PEDESTRIAN CONNECTION, TYPE 5

STANDARD NO. C-2 (2022)

SHT. 7 OF 7

REVIEWED

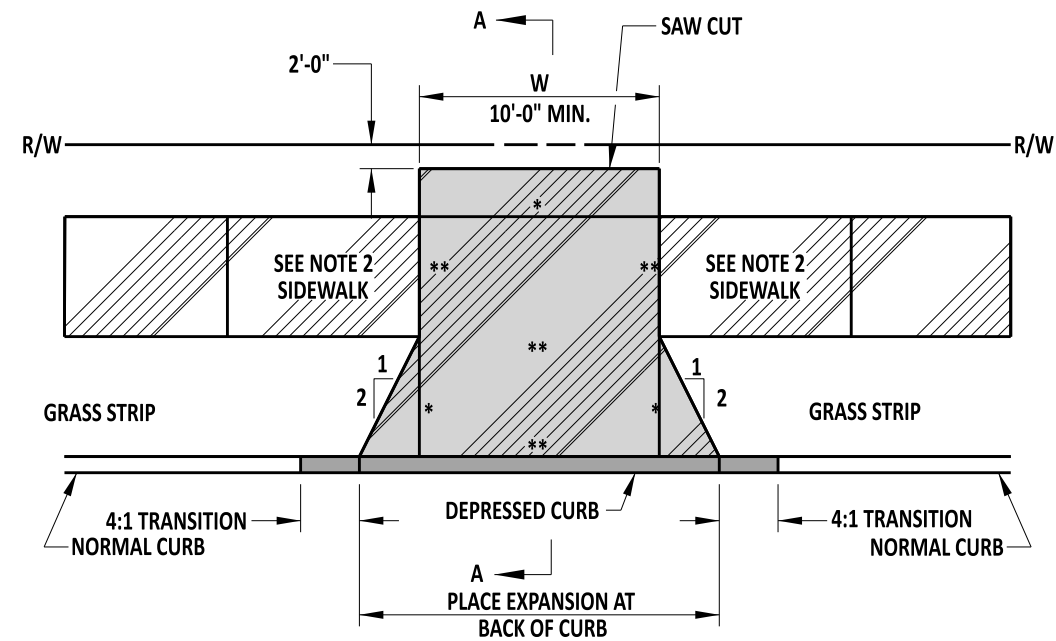
Mike Lee
DEPUTY DIRECTOR - DESIGN

12/16/2022
DATE

APPROVED

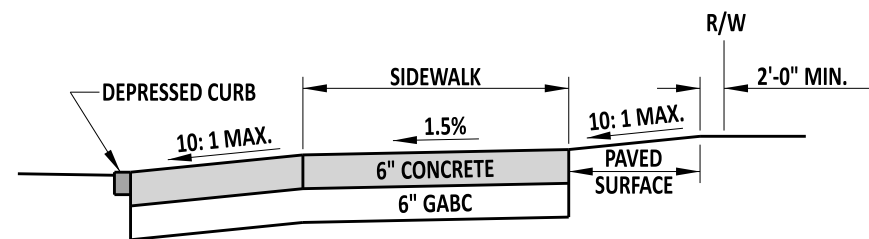
Shrey
CHIEF ENGINEER

12/21/2022
DATE

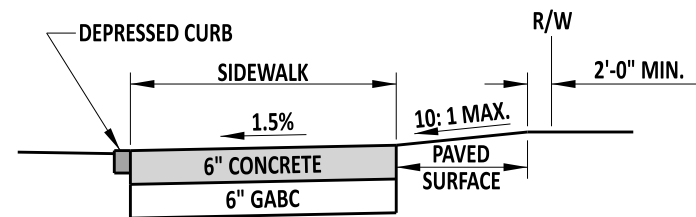


ENTRANCE WITH SIDEWALK AND GRASS STRIP

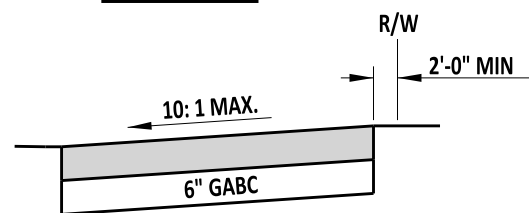
* - JOINT
** - EXPANSION MATERIAL



SECTION A-A



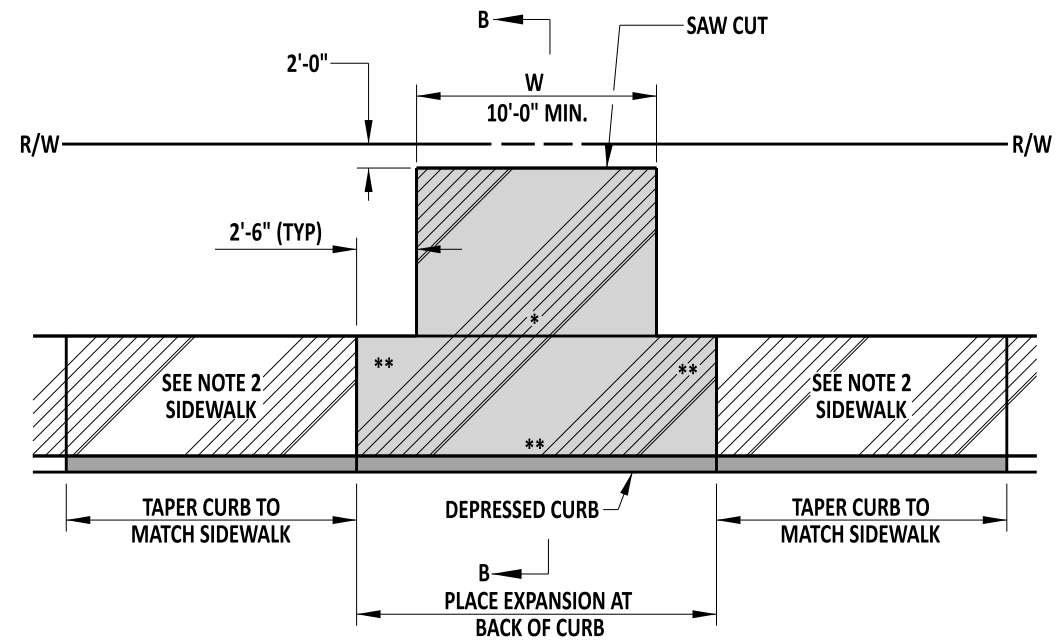
SECTION B-B



SECTION C-C

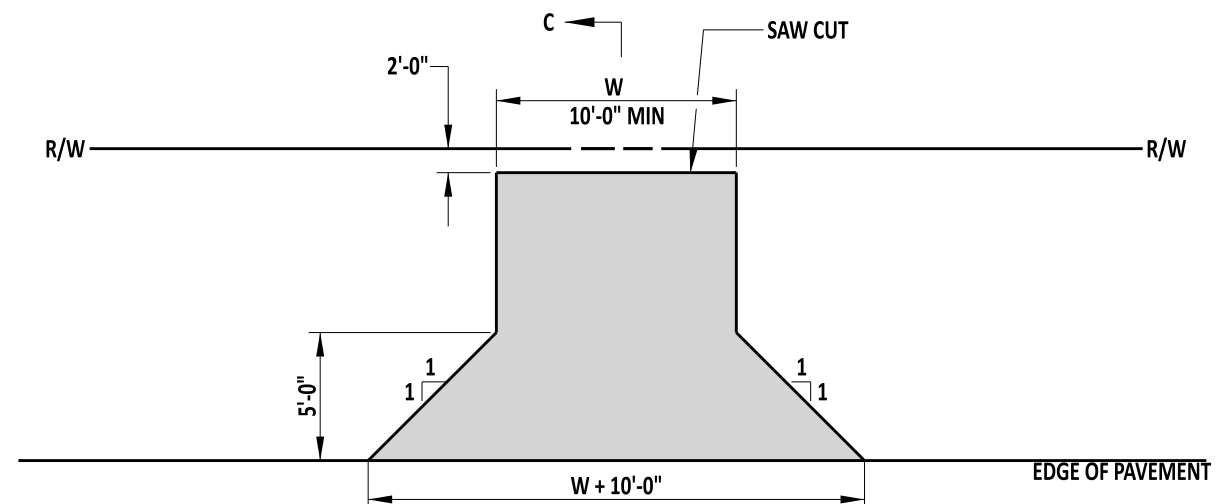
NOTES:

- 1). A MAXIMUM SIDEWALK RUNNING SLOPE OF 4.5% IS PREFERRED WITH ALLOWANCE TO FOLLOW THE ADJACENT ROAD GRADES.
- 2). PROVIDE A SIDEWALK RUNNING SLOPE OF 4.5% LEADING TO THE DRIVEWAY APRON. THE LENGTH OF THE SLOPED SEGMENT LEADING TO THE DRIVEWAY APRON MAY BE LIMITED TO 15'-0" WHEN A 4.5% RUNNING SLOPE CREATES A GRADE CHASING SCENARIO.



ENTRANCE WITH SIDEWALK AND NO GRASS STRIP

* - JOINT
** - EXPANSION MATERIAL



ENTRANCE WITHOUT SIDEWALK

- PCC SIDEWALK
- PCC 6"



Andrew Shott
ENGINEERING SUPPORT
RECOMMENDED
12/13/2022
DATE

STANDARD NO. C-3 (2022)

ENTRANCES

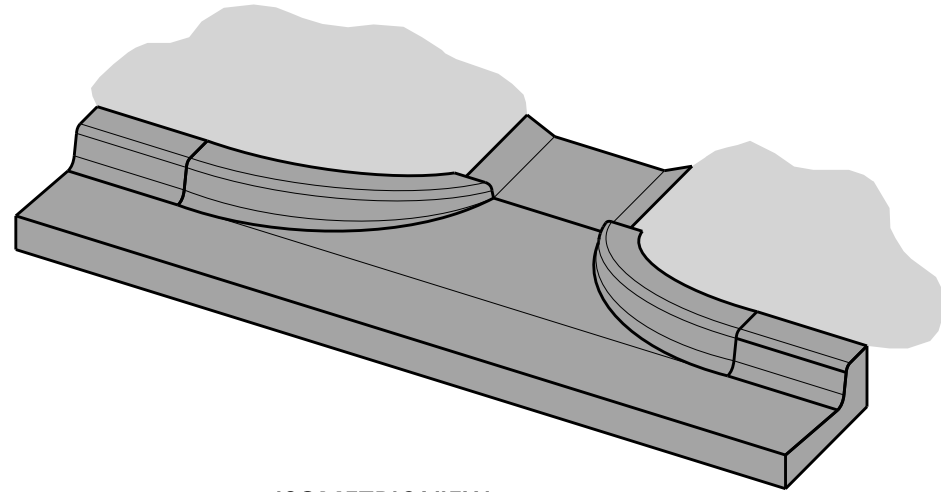
SHT. 1 OF 1

REVIEWED

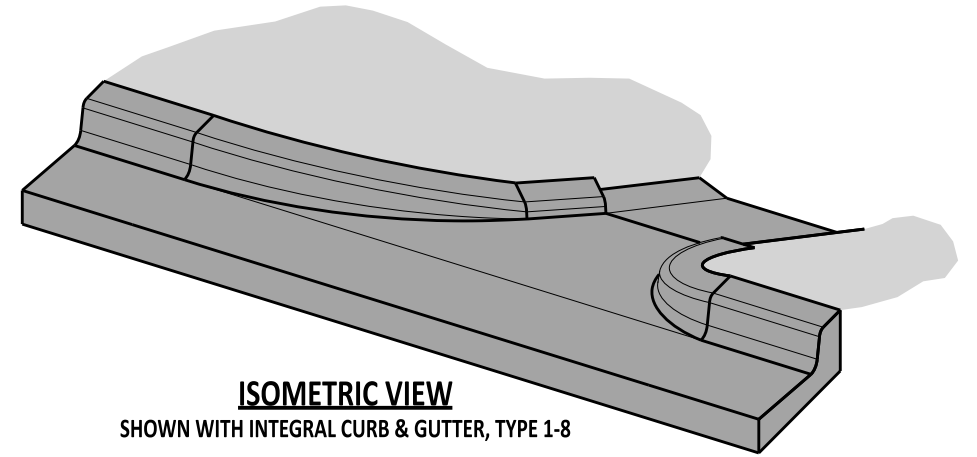
12/16/2022
DEPUTY DIRECTOR - DESIGN
DATE

APPROVED

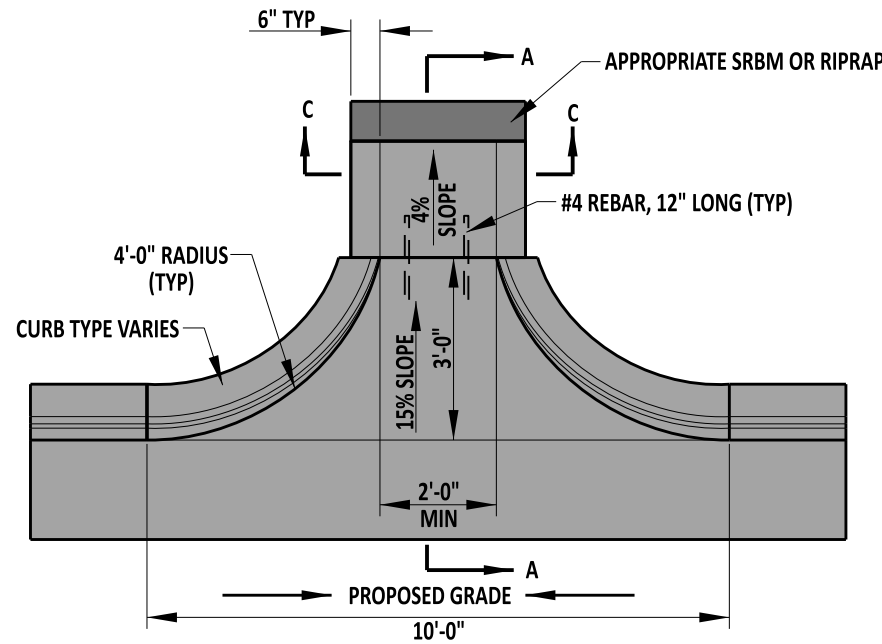
12/21/2022
CHIEF ENGINEER
DATE



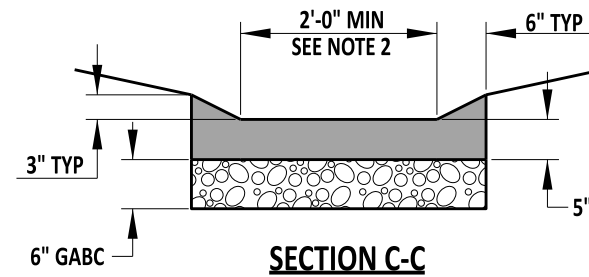
ISOMETRIC VIEW
SHOWN WITH INTEGRAL CURB & GUTTER, TYPE 1-8



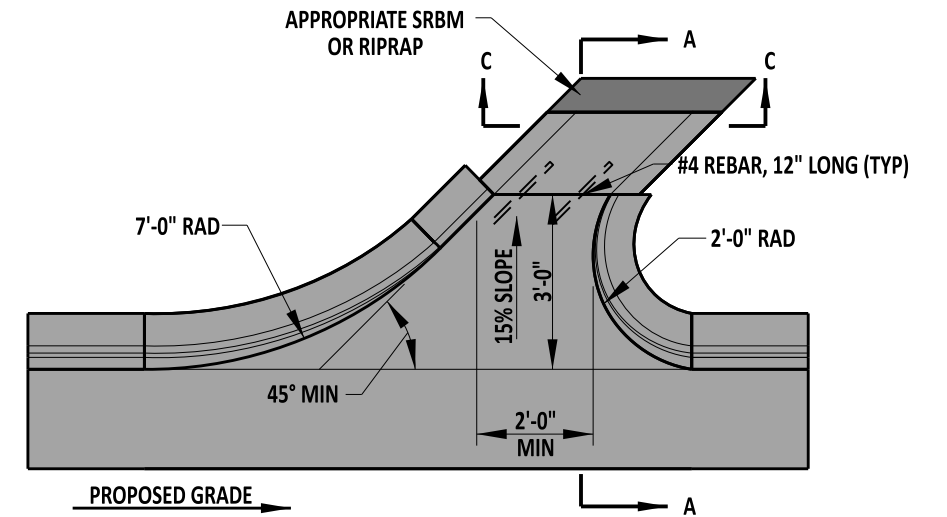
ISOMETRIC VIEW
SHOWN WITH INTEGRAL CURB & GUTTER, TYPE 1-8



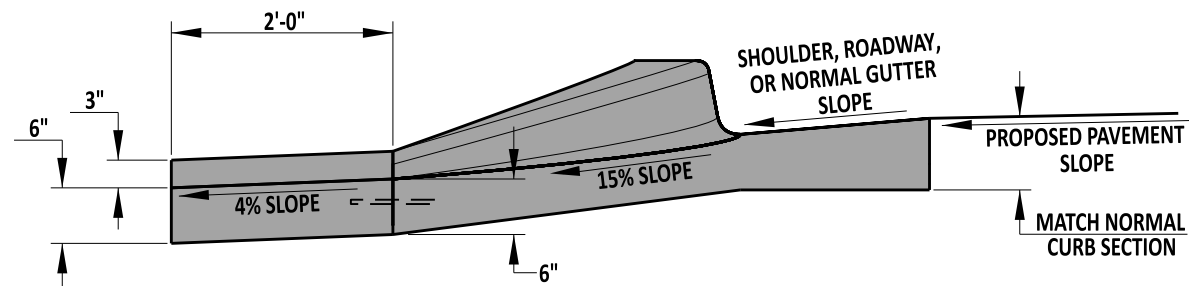
PLAN VIEW
IN SUMP LOCATION



SECTION C-C



PLAN VIEW
ON GRADE OR SLOPE



SECTION A-A

NOTES:

- 1). DESIGNER SHALL ESTABLISH WIDTH OF OPENING BASED ON DRAINAGE CALCULATIONS.
- 2). MATCH THE WIDTH OF THE APRON (SHOWN IN SECTION C-C) TO THE WIDTH OF THE CURB OPENING (SHOWN IN PLAN VIEW).
- 3). WHEN A SIDEWALK OPENING IS USED WHERE A GRASS BUFFER STRIP IS PRESENT, THIS DETAIL MAY BE USED IN CONJUNCTINO WITH CURB/SIDEWALK OPENING DETAIL C-5. THE WIDTH OF THE CURB OPENING CAHNNEL MUST BE INCREASED TO THHE WIDTH OF THE SIDEWALK OPENING AND DETAIL C-4 SECTION C-C SHALL BE MODIFIED TO MATCH DETAIL C-5 SECTION C-C.



Andrew Shott
ENGINEERING SUPPORT
RECOMMENDED
12/13/2022
DATE

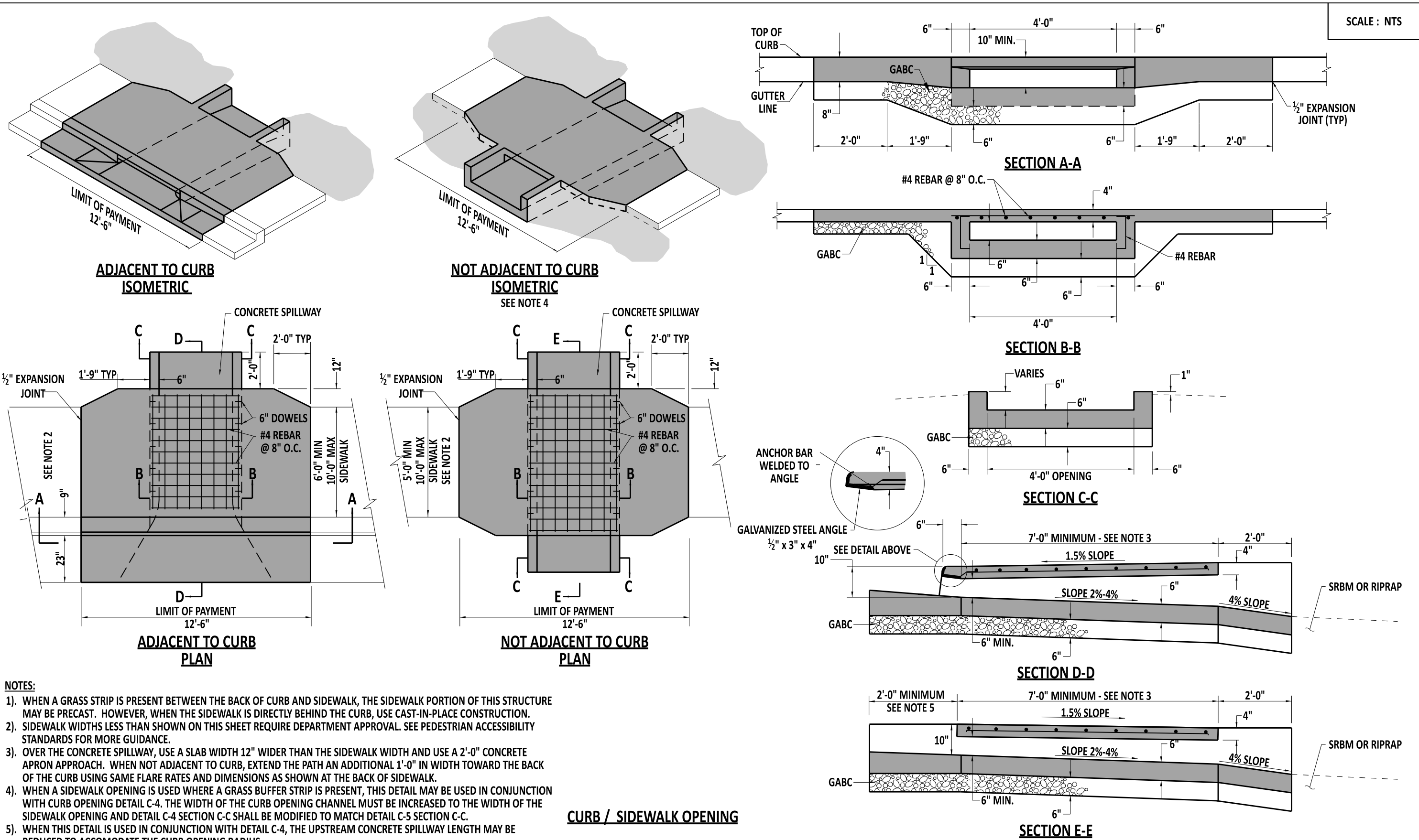
CURB OPENING
STANDARD NO. C-4 (2022)
SHT. 1 OF 1

REVIEWED
APPROVED

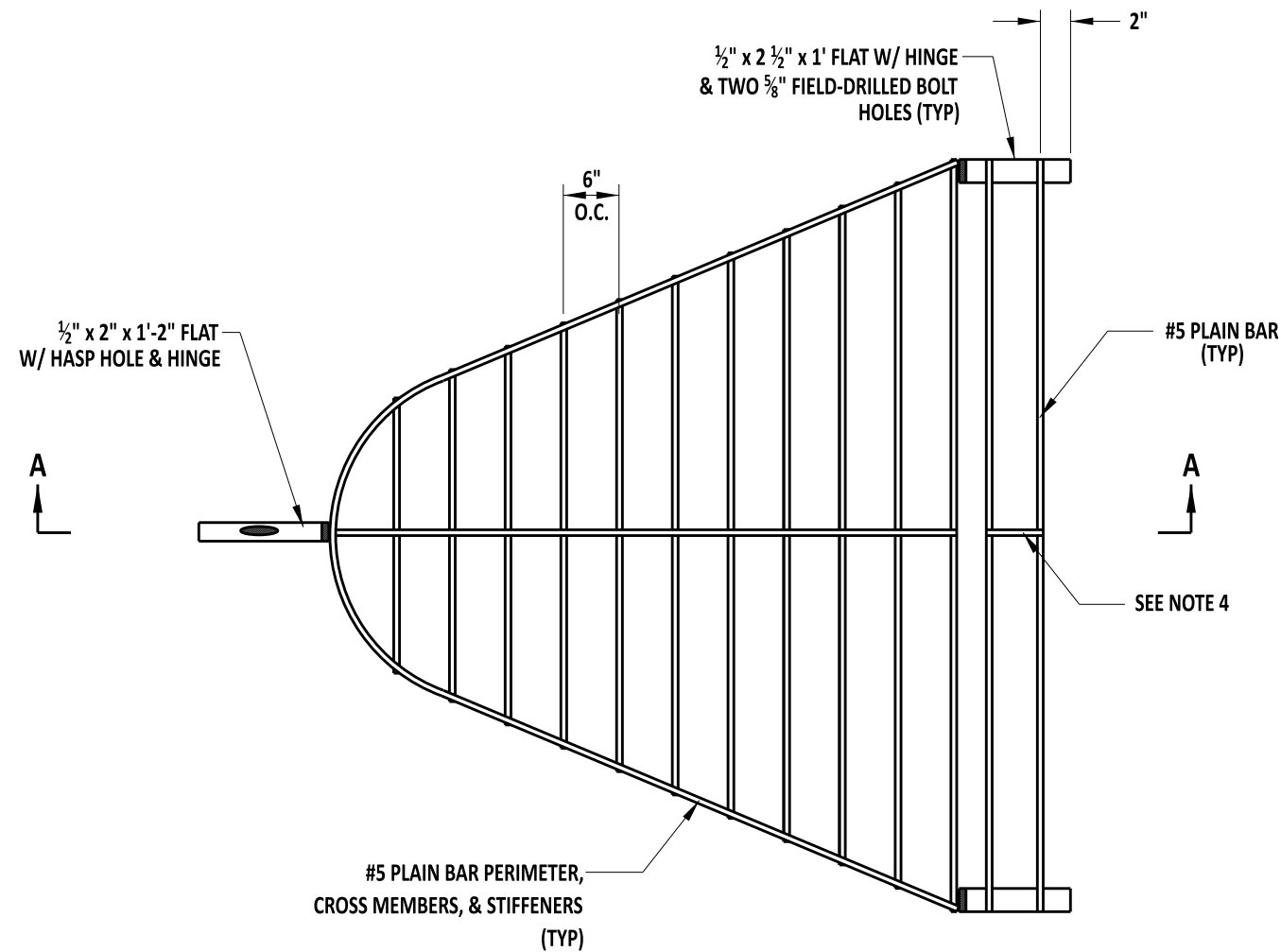
Mike Lee
DEPUTY DIRECTOR - DESIGN
Shrey
CHIEF ENGINEER

12/16/2022
DATE

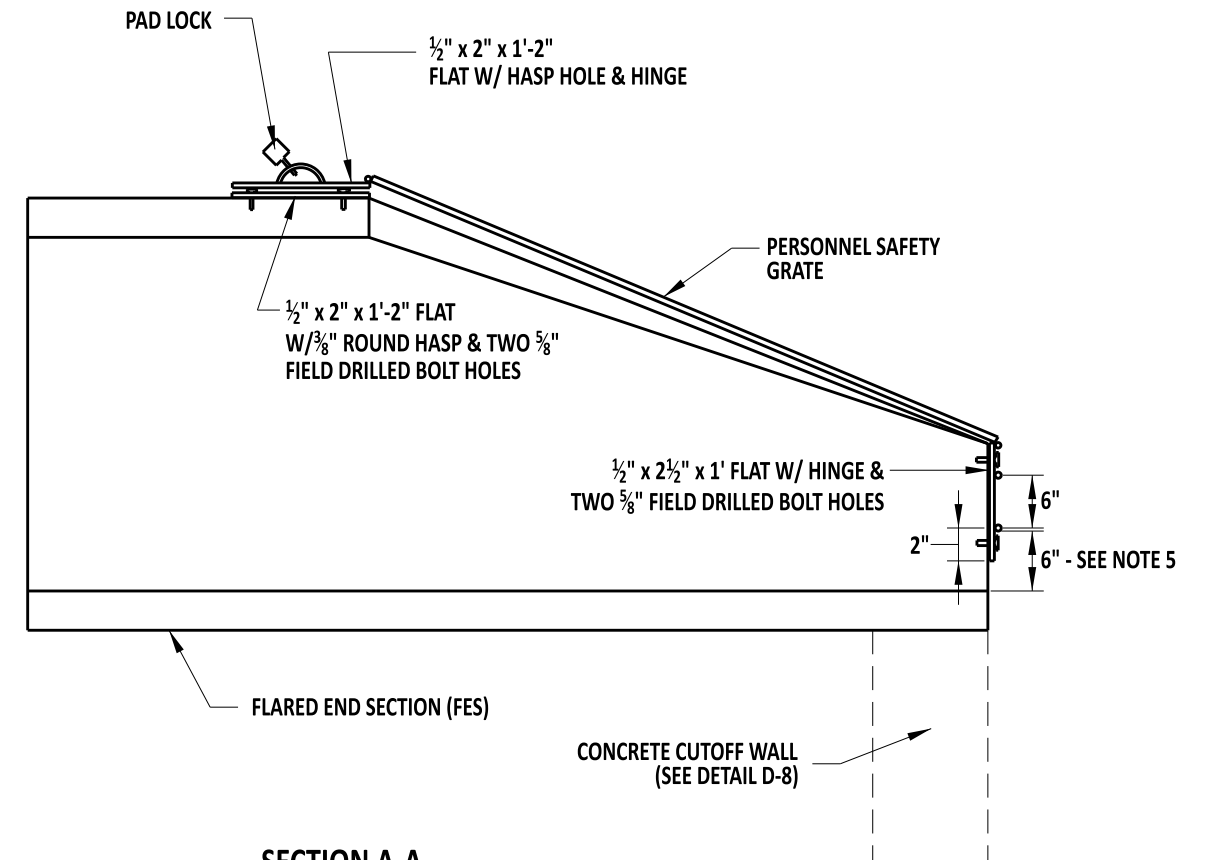
12/21/2022
DATE



	<p><i>Andrew Shott</i> ENGINEERING SUPPORT 12/13/2022 DATE</p> <p>RECOMMENDED</p>	<p>CURB / SIDEWALK OPENING</p> <p>STANDARD NO. C-5 (2022)</p> <p>SHT. 1 OF 1</p>	<p>REVIEWED <i>Mike Lee</i> DEPUTY DIRECTOR - DESIGN 12/16/2022 DATE</p> <p>APPROVED <i>Shrey</i> CHIEF ENGINEER 12/21/2022 DATE</p>
--	---	--	--



PLAN VIEW



SECTION A-A

NOTES:

- 1). INSTALL PERSONEL SAFETY GRATES (PSG) ON THE INLETS OF STORM WATER PIPES 12" OR LARGER IN DIAMETER THAT ARE NOT STRAIGHT FROM THE INLET TO THE OPEN OUTLET.
- 2). IF A TRAVERSABLE GRATE OR AN INTERNAL ENGERGY DISSIPATER IS INSTALLED ON THE OUTLET OF A STORM WATER PIPE 12" OR LARGER IN DIAMETER, A PSG MUST BE INSTALLED ON THE INLET.
- 3). FIT THE GRATE TO THE OUTSIDE PERIMETER OF THE FLARED END SECTION (FES) $\pm \frac{1}{2}$ ".
- 4). DRILL ALL BOLT HOLES IN THE FIELD.
- 5). INSTALL A STIFFENER WHERE TWO OR MORE BARS ARE USED.
- 6). PLACE BOTTOM BAR 6" ABOVE INVERT OF FES.
- 7). ATTACH ALL HARDWARE IN CONCRETE USING APPROVED TAMPER PROOF ANCHORS.



Andrew Shott
ENGINEERING SUPPORT
RECOMMENDED
12/13/2022
DATE

PERSONNEL SAFETY GRATE FOR PIPE INLET

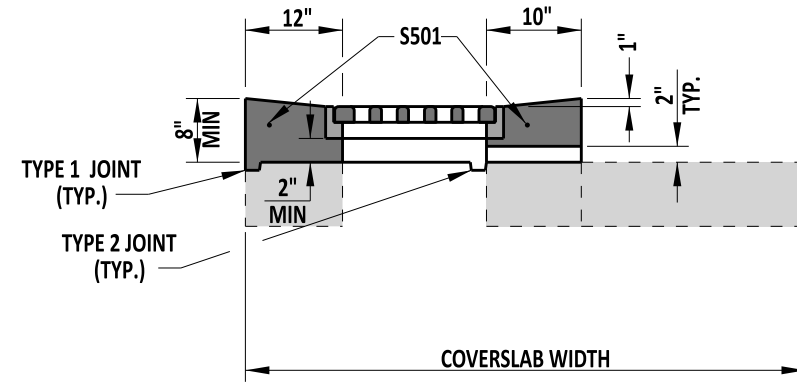
STANDARD NO. D-3 (2022) SHT. 2 OF 2

REVIEWED

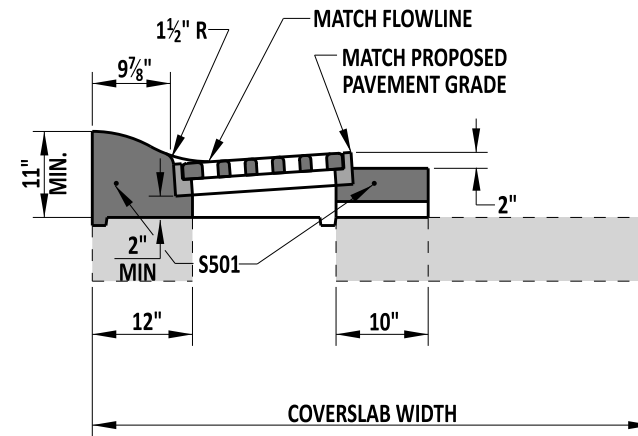
Mike Lee
DEPUTY DIRECTOR - DESIGN
12/16/2022
DATE

APPROVED

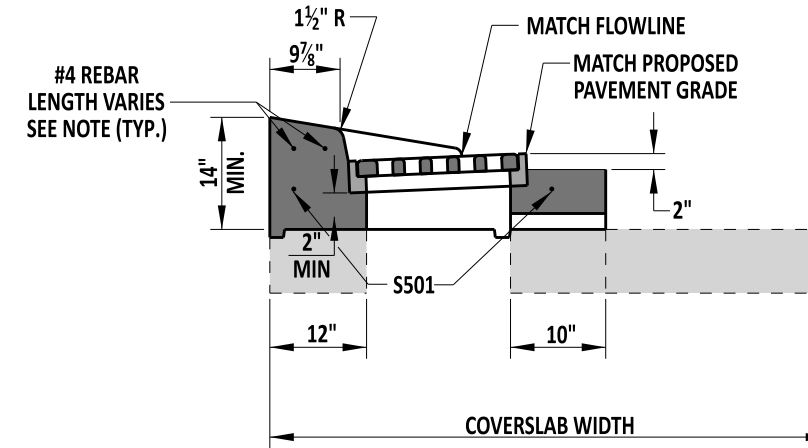
Shrey
CHIEF ENGINEER
12/21/2022
DATE



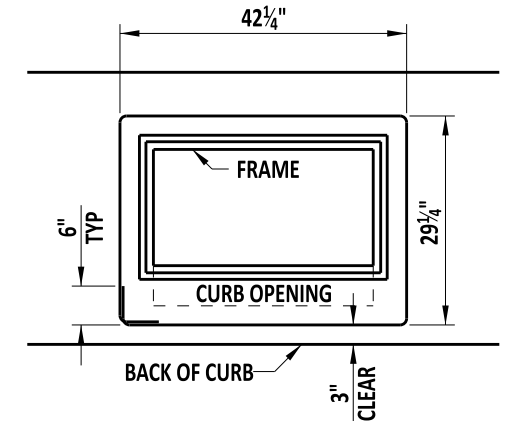
TYPE A



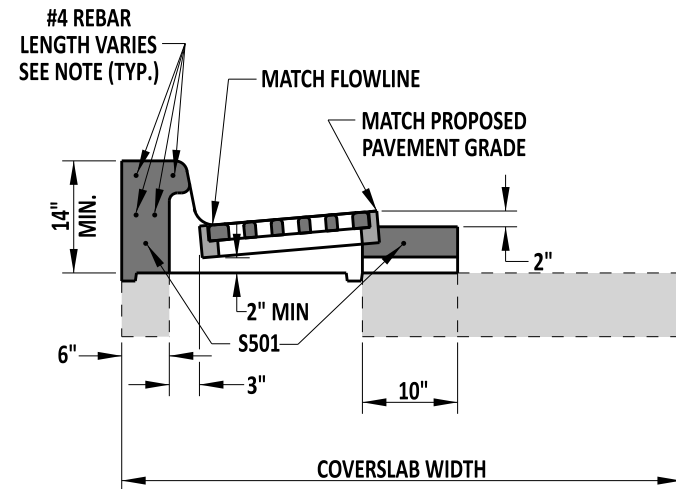
TYPE D



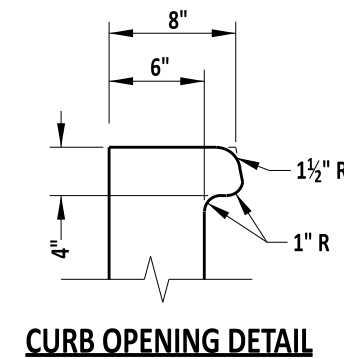
TYPE E



S501 BENDING DIAGRAM
#5 REBAR TO BE CONTINUOUS OR WITH 12" OVERLAP BETWEEN BARS.

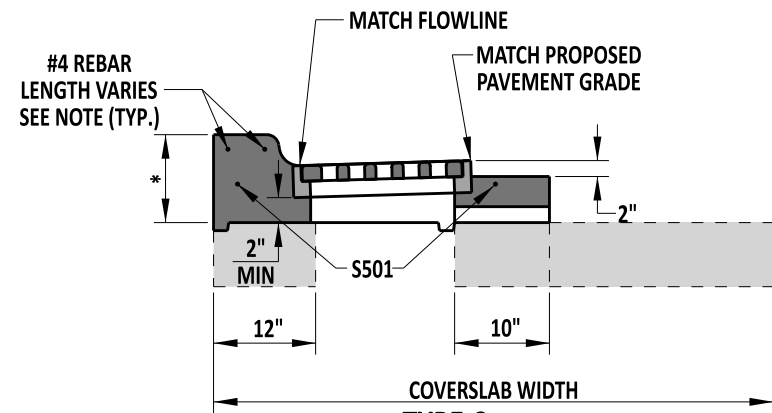


TYPE B
SEE CURB OPENING DETAIL ON THIS SHEET



CURB OPENING DETAIL

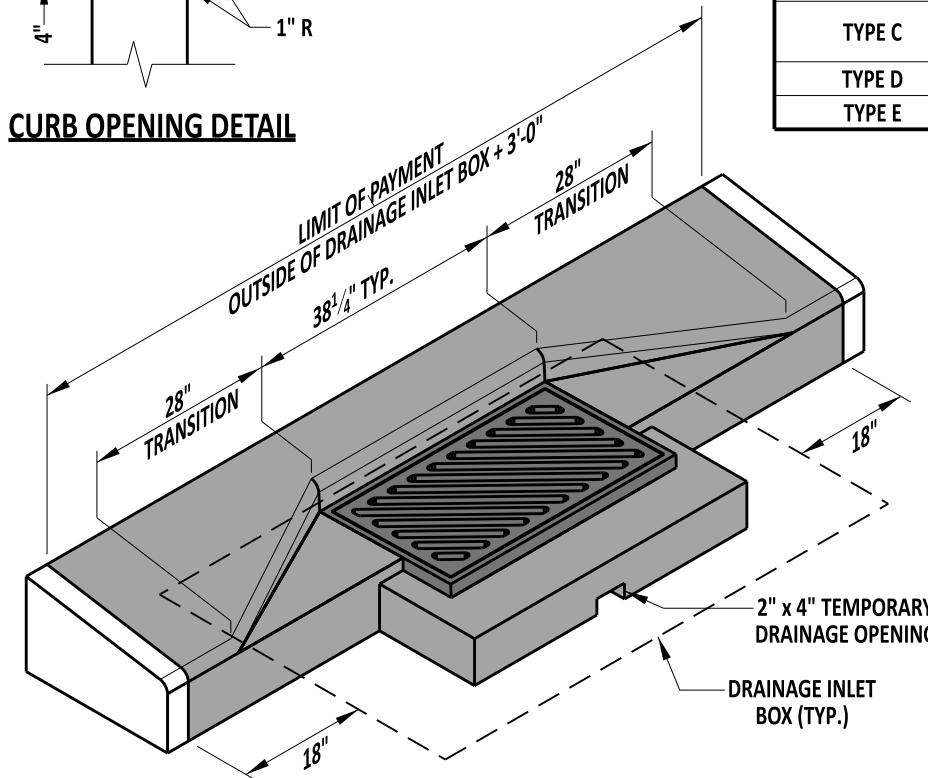
INLET TOP UNIT APPLICATIONS	
TOP UNIT	CURB
TYPE A	USE IN NON CURBED
TYPE B	INTEGRAL PCC CURB & GUTTER, TYPE 1-8 & 3-8, PCC CURB TYPE 1-8
TYPE C	INTEGRAL PCC CURB & GUTTER, TYPES 1-6, 3-6, 1-4, 3-4, 1-2 AND 3-2 AND PCC CURB TYPE 1-6, 1-4, AND 1-2.
TYPE D	INTEGRAL PCC CURB & GUTTER, TYPE 2
TYPE E	PCC CURB TYPE 2



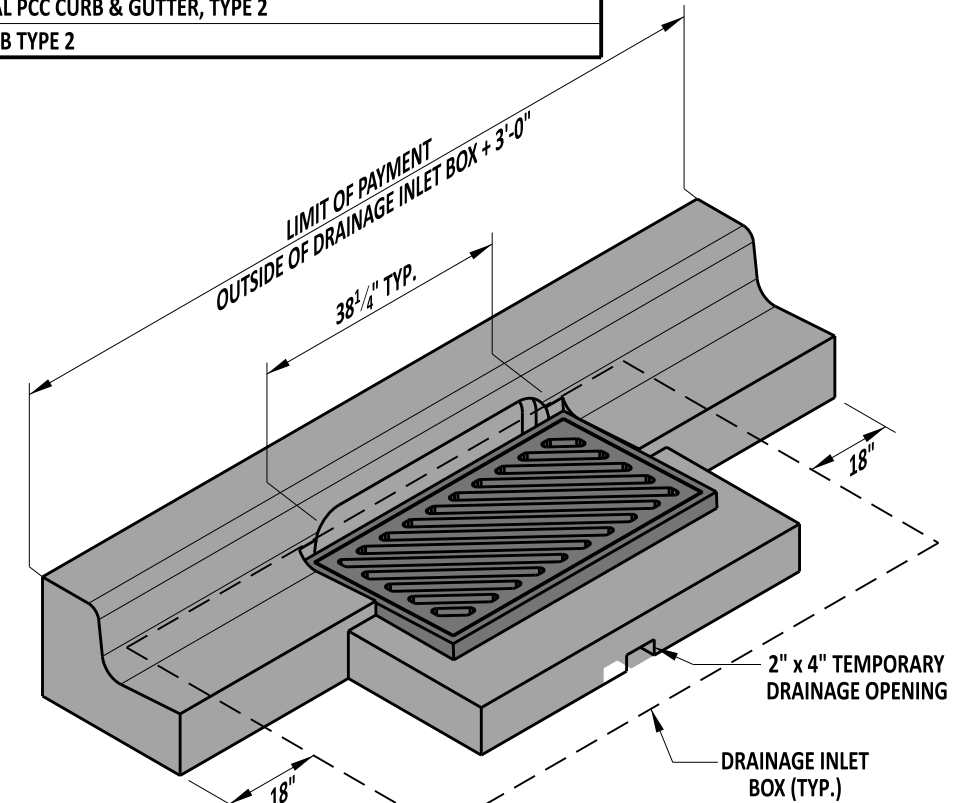
TYPE C

- * - THIS DIMENSION VARIES BASED ON THE HEIGHT OF THE CURB AND GUTTER OR CURB USED:
- INTEGRAL PCC CURB AND GUTTER, TYPES 1-6 AND 3-6 & CURB, TYPE 1-6 - 12" MIN.
 - INTEGRAL PCC CURB AND GUTTER, TYPES 1-4 AND 3-4 & CURB, TYPE 1-4 - 10" MIN.
 - INTEGRAL PCC CURB AND GUTTER, TYPES 1-2 AND 3-2 & CURB, TYPE 1-2 - 8" MIN.

NOTE: LENGTH OF #4 REBAR SHALL BE THE OUTSIDE OF THE DRAINAGE INLET BOX PLUS 2'-9".



ISOMETRIC VIEW
TYPE E UNIT SHOWN



ISOMETRIC VIEW
TYPE B TOP UNIT SHOWN WITH INTEGRAL CURB & GUTTER TYPE 3

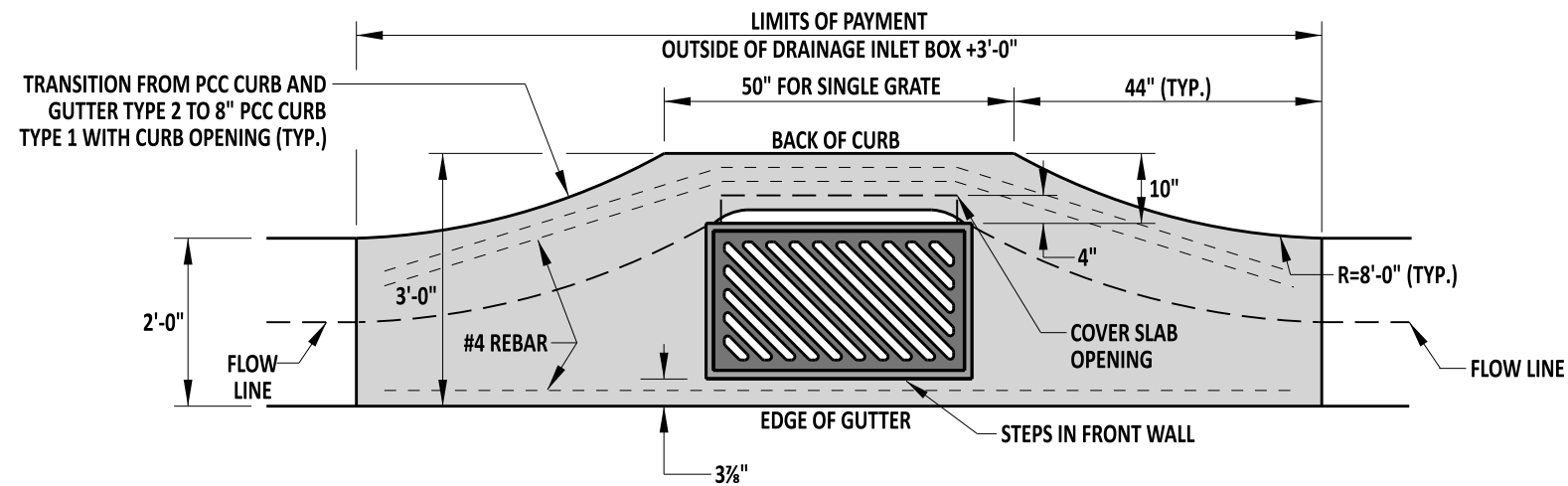
TYPE E TOP UNITS ARE INTENDED TO LIMIT INTRUSION INTO BIKE AND TRAVEL LANES. WHERE SUFFICIENT SHOULDER EXISTS, THE GRATE IS TO BE INSTALLED IN LINE WITH THE CURB FACE.



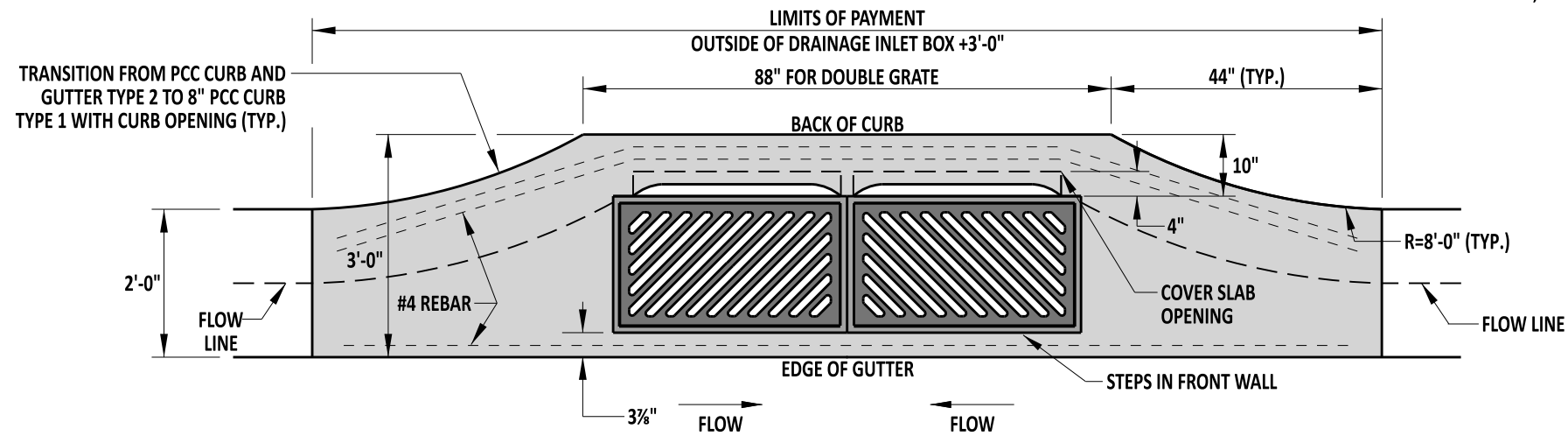
Andrew Shott
ENGINEERING SUPPORT
RECOMMENDED
12/13/2022
DATE

DRAINAGE INLET TOP UNITS
STANDARD NO. D-5 (2022)
SHT. 3 OF 9

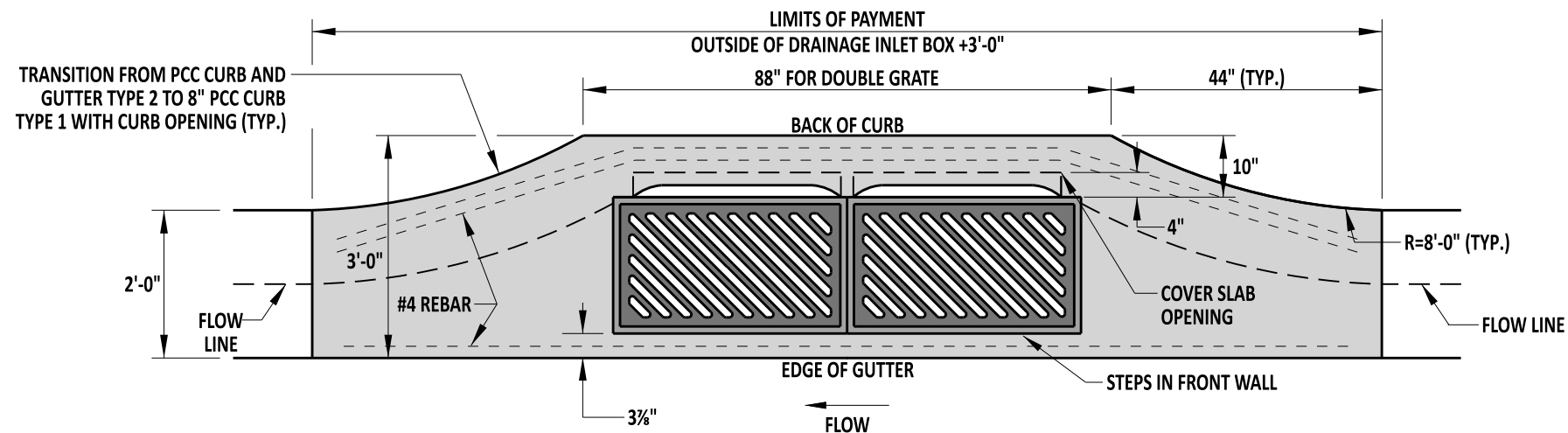
REVIEWED
APPROVED
12/16/2022
12/21/2022
DATE



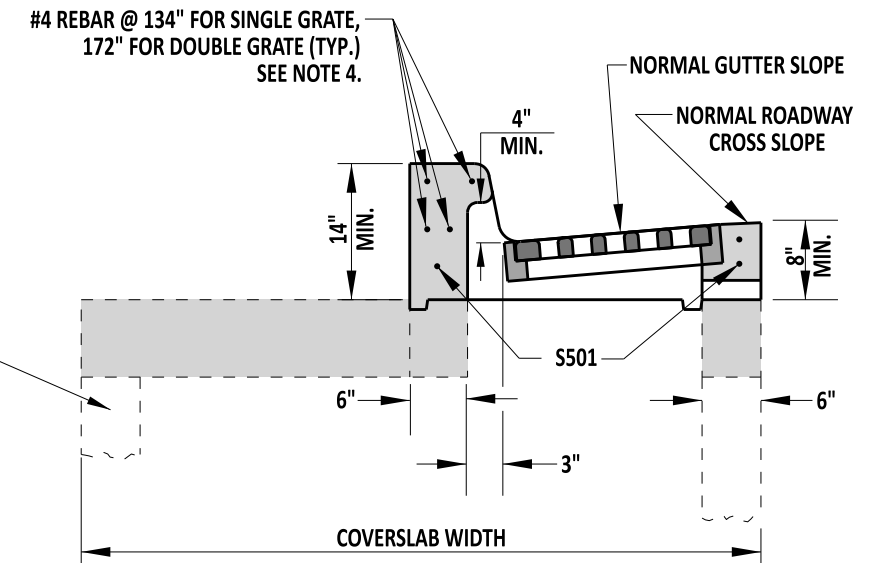
SINGLE GRATE SETUP



DOUBLE GRATE SETUP IN SUMP



DOUBLE GRATE SETUP ALONG A GRADE



SUBDIVISION TOP & CONFIGURATION

NOTES:

- 1). MINIMUM BOX SIZE TO BE 34" x 24".
- 2). FOR PIPE OPENINGS IN THE FRONT WALL, SHIFT THE PIPE HORIZONTALLY TO AVOID INTERFERENCE WITH THE STEPS. IT MAY BE NECESSARY TO USE A LARGER BOX TO AVOID CONFLICT BETWEEN STEPS AND PIPE OPENING.
- 3). SEE D-5, SHEET 3 OF 9, FOR S501 BAR DIAGRAM.
- 4). THE REBAR IN THE HEAD IS PREFERRED TO BE ONE CONTINUOUS PIECE. HOWEVER, IF MULTIPLE PIECES ARE TO BE USED, PROVIDE A 12" MINIMUM LAP AND THE TOTAL LENGTH OF REBAR AS NOTED ON THIS DETAIL.



Andrew Shott
ENGINEERING SUPPORT
RECOMMENDED
12/13/2022
DATE

DRAINAGE INLET TOP UNIT, TYPE S

STANDARD NO. D-5 (2022) SHT. 8 OF 9

REVIEWED

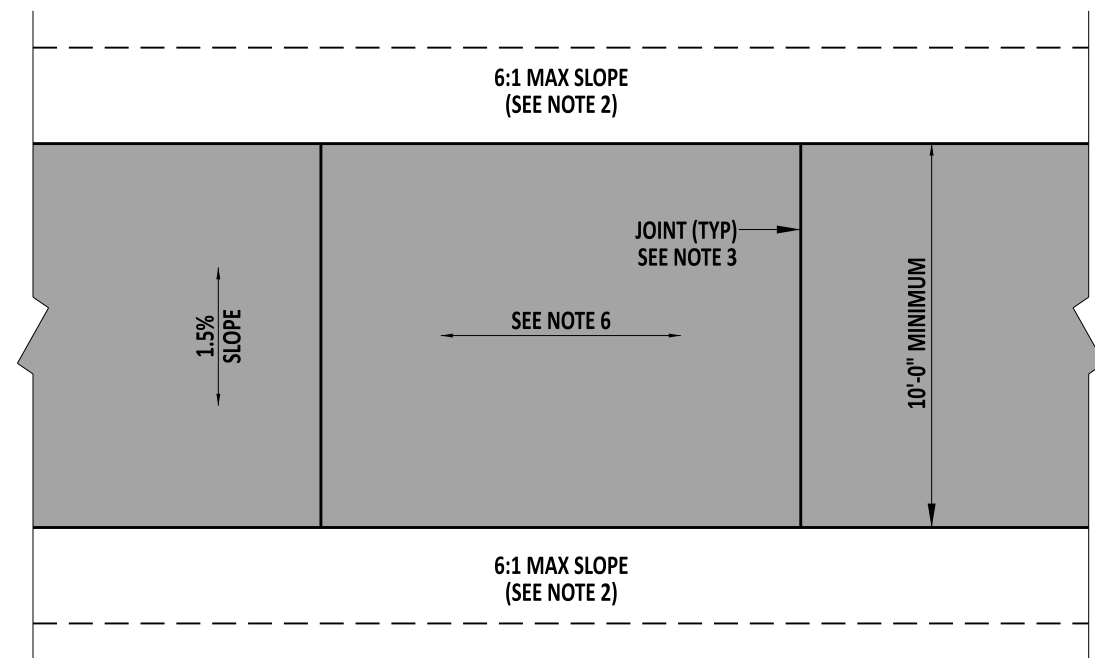
Mike Lee
DEPUTY DIRECTOR - DESIGN

12/16/2022
DATE

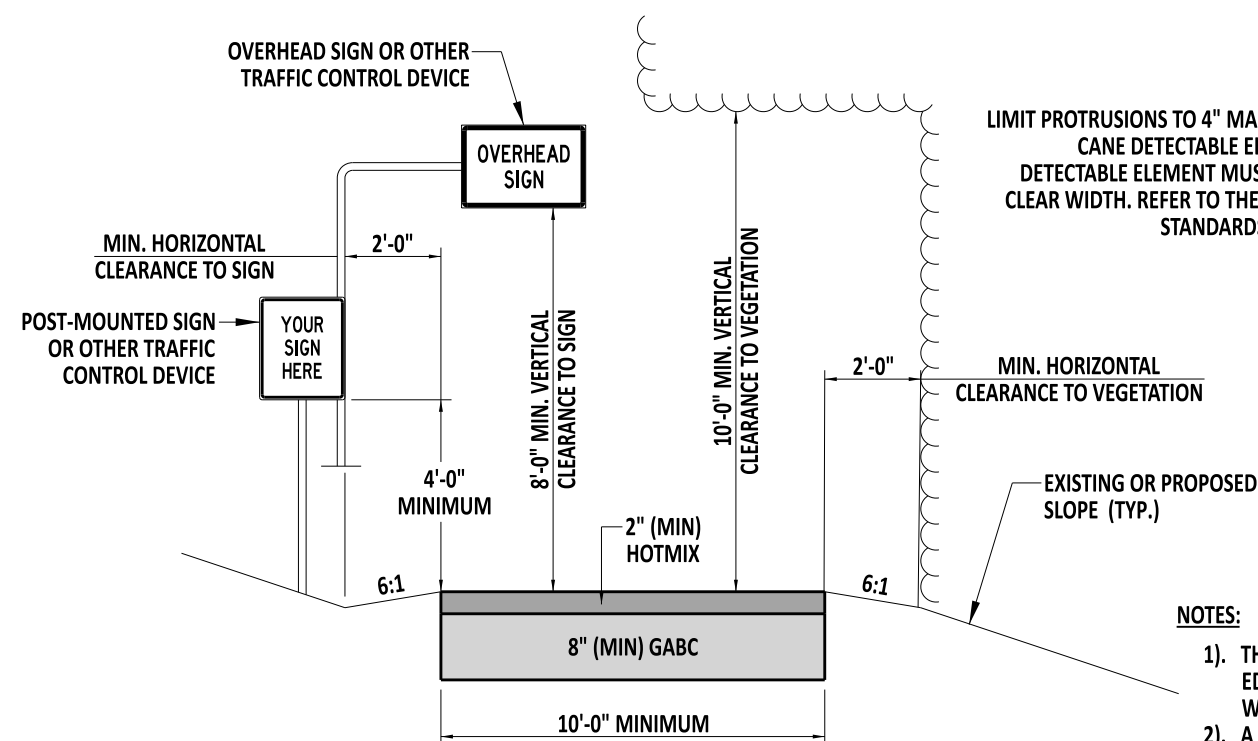
APPROVED

Shrey
CHIEF ENGINEER

12/21/2022
DATE



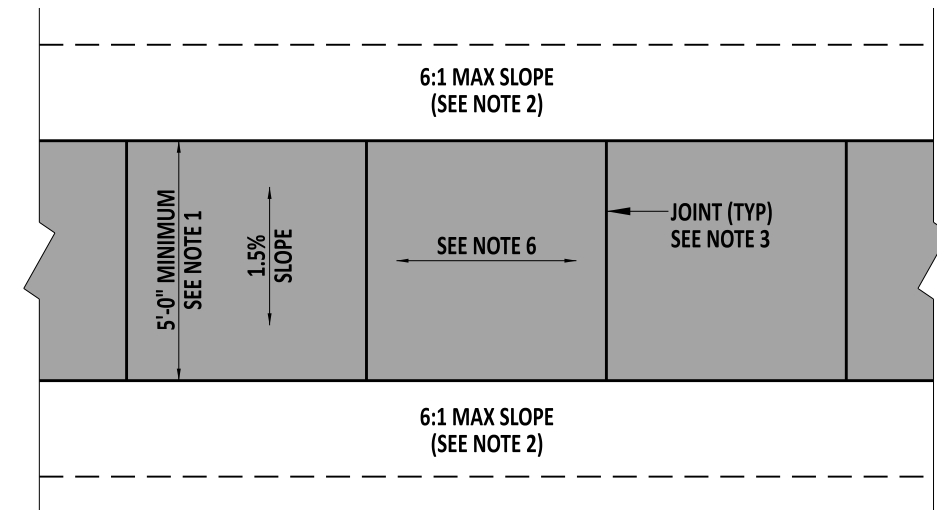
SHARED-USE PATH PLAN



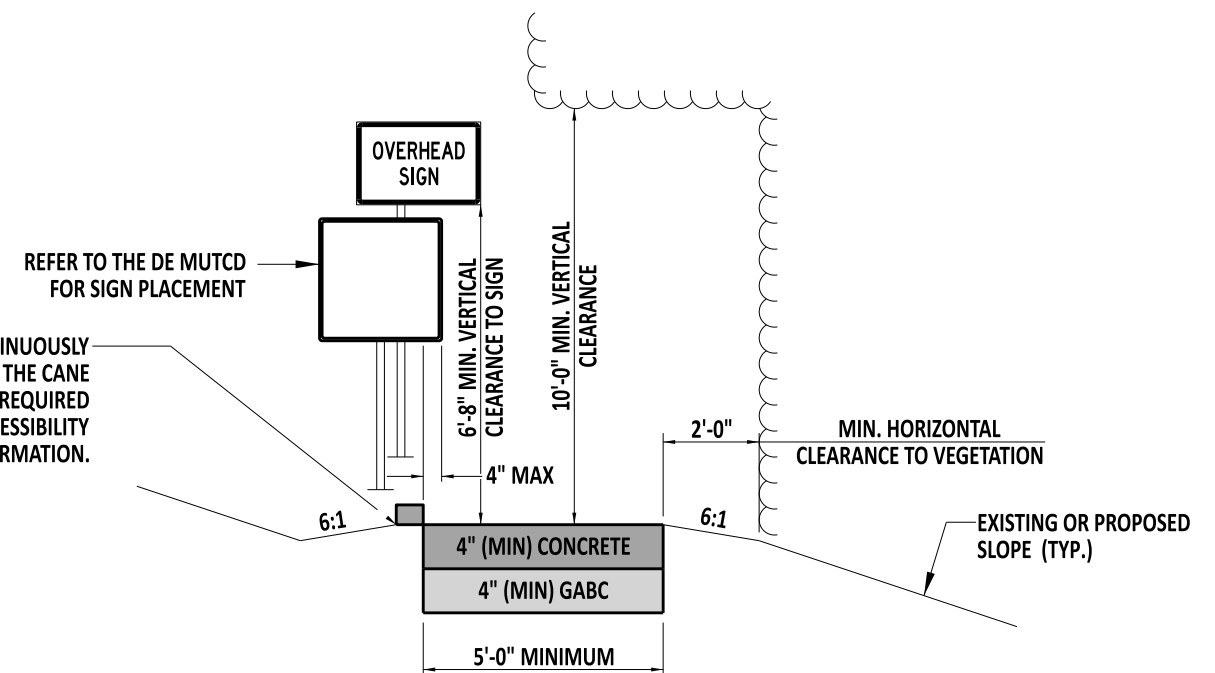
SHARED-USE PATH TYPICAL SECTION

NOTES:

- 1). THE MINIMUM SIDEWALK WIDTH WHEN A BUFFER STRIP IS PROVIDED BETWEEN THE EDGE OF PAVEMENT AND THE SIDEWALK IS 5'-0". THE MINIMUM SIDEWALK WIDTH WHEN A BUFFER STRIP IS NOT PROVIDED IS 6'-0".
- 2). A 6:1 GRADE IS REQUIRED FOR A MINIMUM OF 2'-0" IMMEDIATELY ADJACENT TO THE SHARED USE PATH OR SIDEWALK.
- 3). FOR SIDEWALKS, PLACE CONSTRUCTION JOINTS EVERY 5'-0" IN ACCORDANCE WITH SECTION 705.3. FOR CONCRETE SHARED-USE PATHS, PLACE CONSTRUCTION JOINTS EVERY 10'-0".
- 4). PLACE EXPANSION MATERIAL IN ACCORDANCE WITH SECTION 701.3.
- 5). WHEN EXISTING OBSTRUCTIONS (FIRE HYDRANT, UTILITY POLE, ETC...) ARE LOCATED IN THE SIDEWALK, MAINTAIN A MINIMUM WIDTH OF 32" AND MAXIMUM LENGTH CONSTRICTION OF 24".
- 6). NOT TO EXCEED 4.5% OR ADJACENT ROAD GRADE.
- 7). PROVIDE A STANDARD 3'-0" BUFFER WIDTH BETWEEN SIDEWALK AND BACK OF CURB.
- 8). FOR TRANSITIONS TO STANDARD BUFFER WIDTH, MAINTAIN FULL WIDTH CONCRETE UNTIL THE SIDEWALK BUFFER STRIP IS A MINIMUM WIDTH OF 18".
- 9). THE MINIMUM BUFFER WIDTH FOR A SHARED USE PATH IS 5'-0", WITH A PREFERRED WIDTH OF 10'-0".



SIDEWALK PLAN



SIDEWALK TYPICAL SECTION

SCALE : NTS



Andrew Shott
ENGINEERING SUPPORT
RECOMMENDED
12/13/2022
DATE

SHARED-USE PATH & SIDEWALK

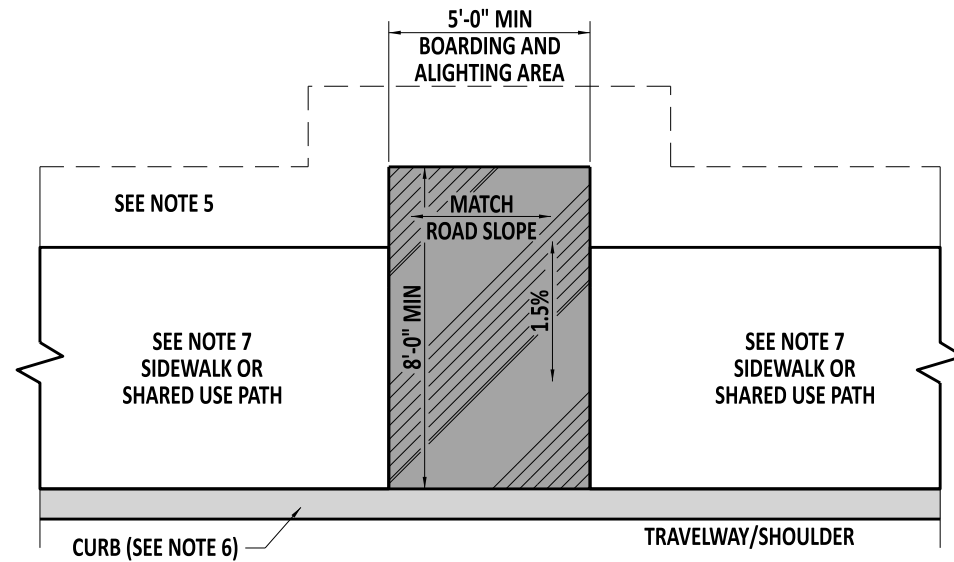
STANDARD NO. M-3 (2022) SHT. 1 OF 1

REVIEWED

12/16/2022
DEPUTY DIRECTOR - DESIGN
DATE

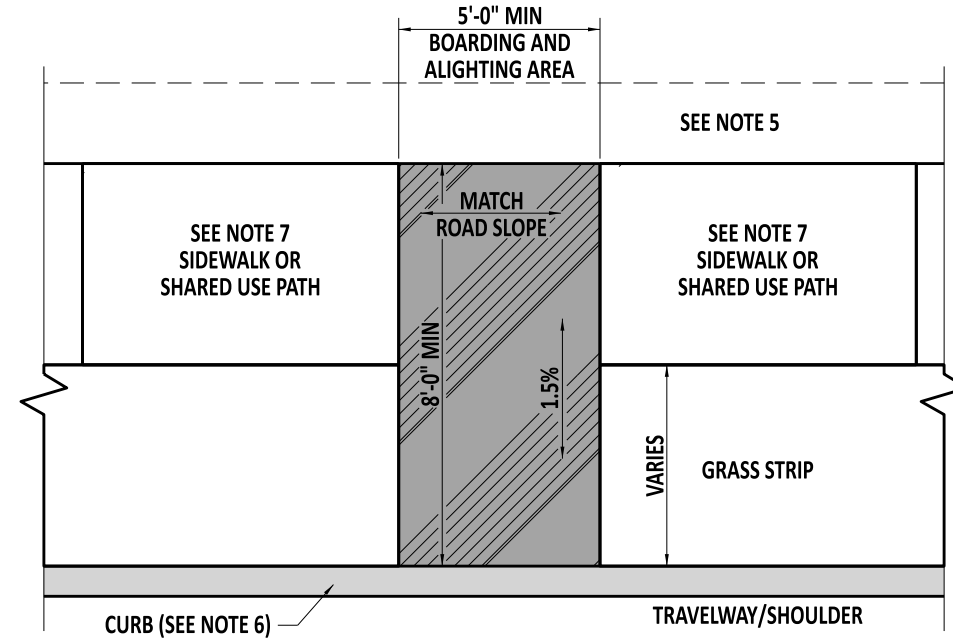
APPROVED

12/21/2022
CHIEF ENGINEER
DATE



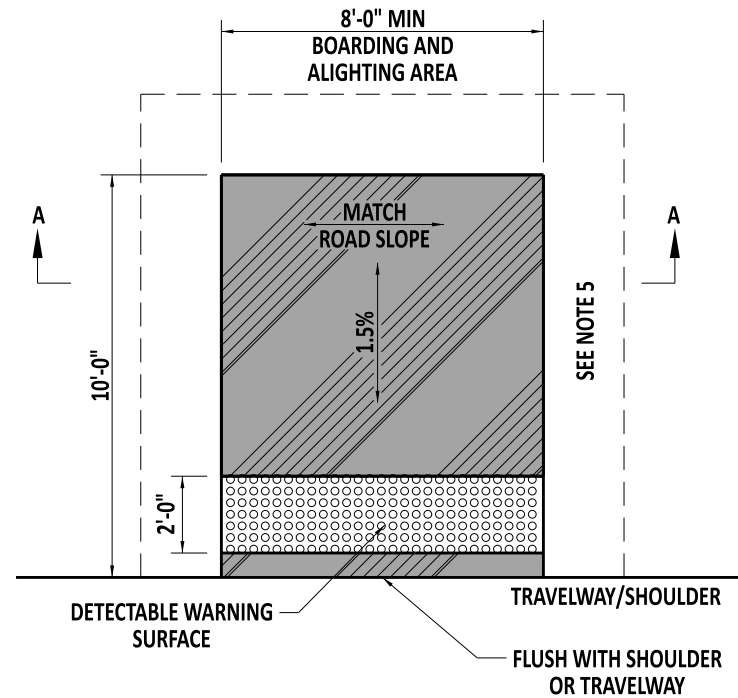
BUS STOP PAD, TYPE 1

- * - TO BE USED WHEN A SIDEWALK OR SHARED USE PATH IS INCLUDED WITHOUT A GRASS STRIP.
- * - WHEN USED AT A LOCATION WITH A SHARED USE PATH, MATCH BUS PAD DIMENSIONS TO FULL WIDTH OF THE PATH.



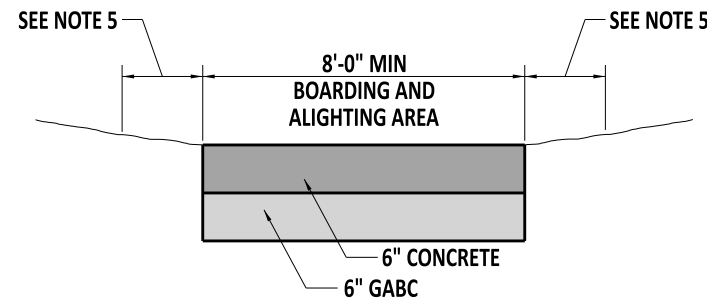
BUS STOP PAD, TYPE 2

- * - TO BE USED WHEN A SIDEWALK OR SHARED USE PATH IS INCLUDED WITH A GRASS STRIP.

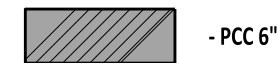


BUS STOP PAD, TYPE 3

- * - TO ONLY BE USED WHEN SIDEWALK OR SHARED USE PATH IS NOT INCLUDED.
- * - A 5'-0" MINIMUM SHOULDER IS REQUIRED FOR PEDESTRIAN ACCESS



SECTION A-A



NOTES:

- 1). BUS STOP PAD LOCATIONS TO BE APPROVED BY BOTH DART AND DELDOT PRIOR TO ANY CONSTRUCTION.
- 2). REFERENCE THE DE MUTCD FOR GENERAL INFORMATION ON PLACEMENT OF SIGNS.
- 3). SEE CONSTRUCTION PLAN SIGNING AND STRIPING SHEETS FOR SPECIFIC SIGN AND SIGN LOCATION DETAILS.
- 4). TYPICAL BUS STOP PADS MAY BE USED IN CONJUNCTION WITH BUS STOP SHELTER LOCATIONS IN THE EVENT OF LAND CONSTRAINTS AT THE SHELTER LOCATIONS. AN INTERCONNECTING PEDESTRIAN ACCESS PATH MUST EXIST THAT IS ACCESSIBLE TO BUS STOP ALIGHTING AREAS, SHELTERS, PEDESTRIAN CONNECTIONS, CROSSWALKS, AND SIDEWALKS.
- 5). A 6:1 GRADE IS REQUIRED FOR A MINIMUM OF 2'-0" IMMEDIATELY ADJACENT TO THE BUS STOP PAD OR APPROACHING SIDEWALK.
- 6). MATCH EXISTING CURB. FOR BUS STOP PADS TYPE 1 AND 2, IF NO CURB IS PRESENT, TYPE 1-4 CURB SHALL BE INSTALLED FOR A MINIMUM OF 5' ON EACH SIDE OF THE BUS PAD UNLESS OTHERWISE NOTED ON PLANS. DO NOT DEPRESS CURB IN FRONT OF BUS PAD TYPE 1 OR 2. TAPER END OF CURB FLUSH WITH PAVEMENT OR ADJACENT AREA AT A RATE OF 12:1.
- 7). SEE DETAIL M-3 FOR ADDITIONAL SIDEWALK AND SHARED USE PATH DETAILS AND REQUIREMENTS.



Andrew Shott
ENGINEERING SUPPORT

12/13/2022
DATE

RECOMMENDED

BUS STOP PAD, TYPES 1, 2 & 3

STANDARD NO.

M-9 (2022)

SHT. 1

OF 2

REVIEWED

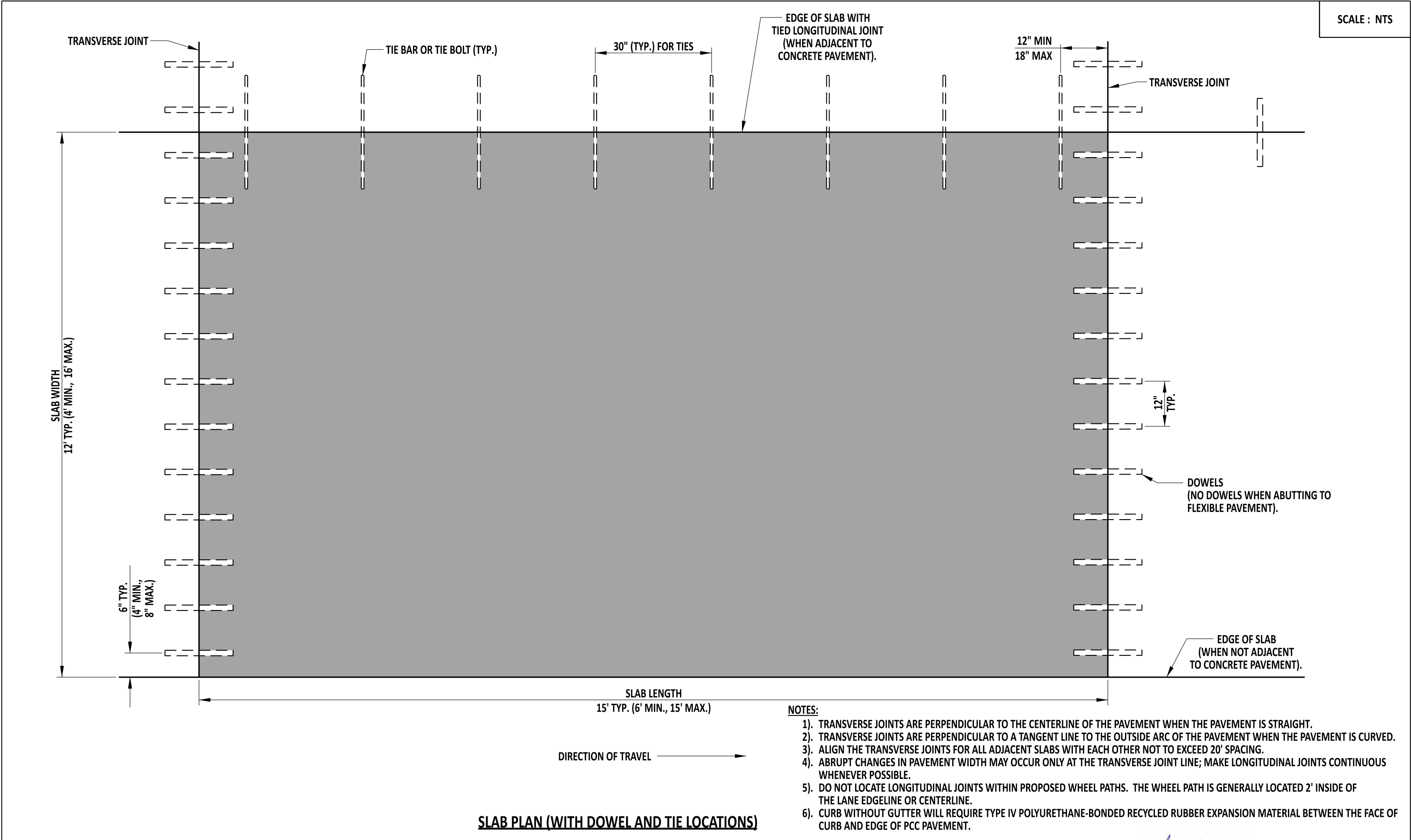
Mike Lee
DEPUTY DIRECTOR - DESIGN

12/16/2022
DATE

APPROVED


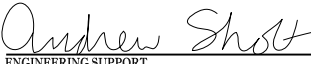

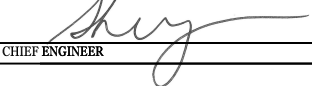
Sherry
CHIEF ENGINEER

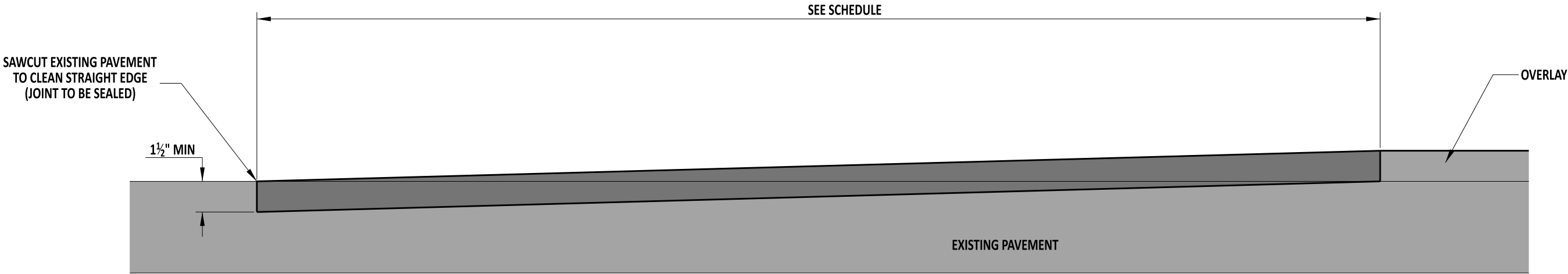
12/21/2022
DATE



SCALE : NTS






SLAB PLAN (WITH DOWEL AND TIE LOCATIONS)

	 ENGINEERING SUPPORT RECOMMENDED	SLAB PLAN (WITH DOWEL AND TIE LOCATIONS)			REVIEWED  DEPUTY DIRECTOR - DESIGN	12/16/2022 DATE
		STANDARD NO. P-1 (2022)	SHT. 1 OF 5	APPROVED  CHIEF ENGINEER	12/21/2022 DATE	



- NOTES:**
- 1). ADJUST THE PROFILE OF THE OVERLAY PAVING TO ASSURE A SMOOTH TRANSITION THROUGH THE BUTT JOINT.
 - 2). CRACK SEAL THE JOINT BETWEEN THE BUTT JOINT AND THE EXISTING PAVEMENT.

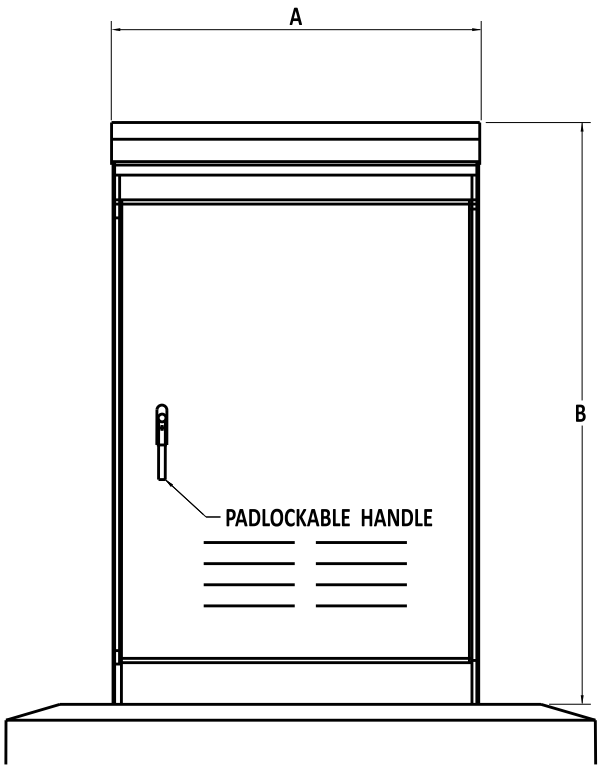
CONDITION	SLOPE FEET:INCHES
GREATER THAN OR EQUAL TO 55 MPH	40:1
LESS THAN 55MPH	30:1
STOP CONTROLLED INTERSECTION	15:1

 De/ DOT 	 ENGINEERING SUPPORT RECOMMENDED	12/13/2022 DATE	BUTT JOINTS				REVIEWED	 DEPUTY DIRECTOR - DESIGN	12/16/2022 DATE
		STANDARD NO.	P-3 (2022)	SHT.	1	OF	1	APPROVED	 CHIEF ENGINEER

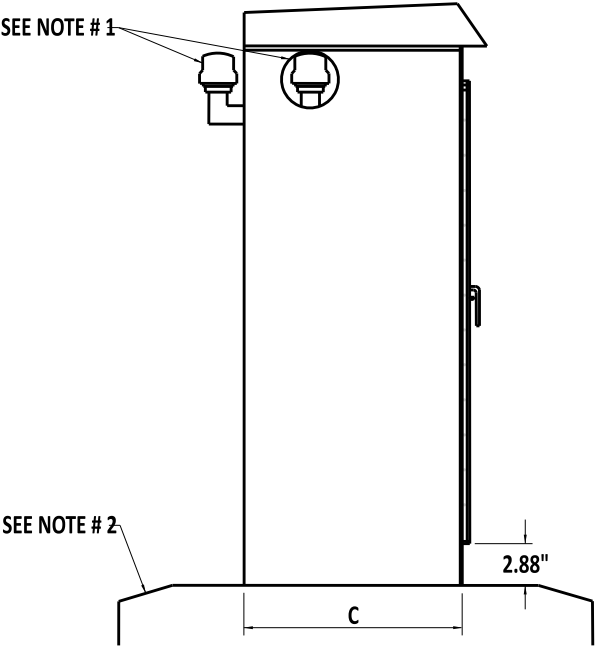
CABINET TYPE			
DIM.	TYPE M	TYPE P	TYPE R
A	36"	44"	44"
B	51"	56"	77"
C	16.88"	25.5"	25.5"

NOTES:

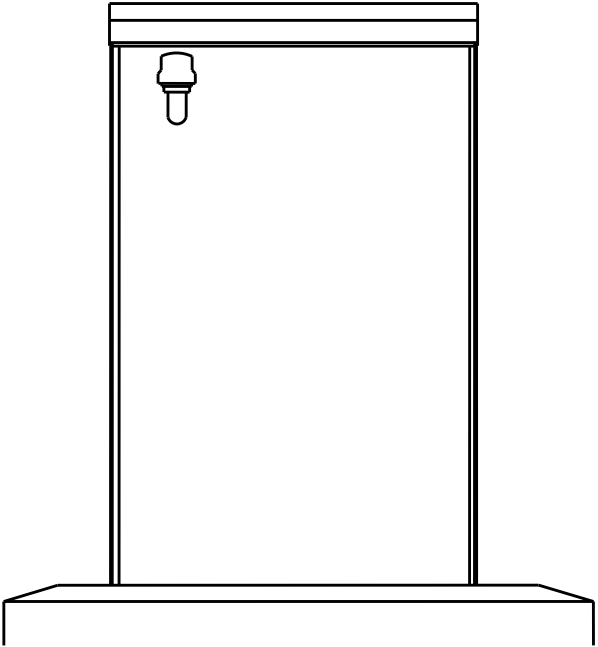
- 1). PHOTOCONTROL DEVICE SHALL BE MOUNTED ON BACK OR SIDE OF CABINET ON 90 DEGREE CONDUIT FITTING TO AVOID VEHICLE HEADLIGHT GLARE. PHOTOCONTROL DEVICE CAN ALSO BE INSTALLED INSIDE OF THE CABINET, BEHIND PLEXI-GLASS SHIELD. THE DESIGNER SHALL COORDINATE WITH THE APPLICABLE MAINTENANCE DISTRICT TO DETERMINE THE LOCATION OF THE PHOTOCONTROL DEVICE ON THE CABINET.
- 2). REFER TO STANDARD DETAILS T-4, SHEET 1 AND T-4, SHEET 2 FOR CABINET BASE DETAILS.
- 3). CABINET SHALL BE NEMA 4X AND SHALL BE FABRICATED FROM 0.125 5052-H32 ALUMINUM.
- 4). METER AND LOAD-SIDE DISCONNECT SWITCH TO BE MOUNTED SEPARATELY FROM CABINET. REFER TO STANDARD DETAIL T-17 METERED SERVICE PEDESTAL.
- 5). FOLLOW UP WITH INDIVIDUAL DISTRICTS FOR ANY SOLE SOURCE COMPONENTS WITHIN THE CABINET.



FRONT VIEW



SIDE VIEW



BACK VIEW



Andrew Shott
ENGINEERING SUPPORT
RECOMMENDED
12/13/2022
DATE

STANDARD LIGHTING CABINET, TYPES M, P, AND R

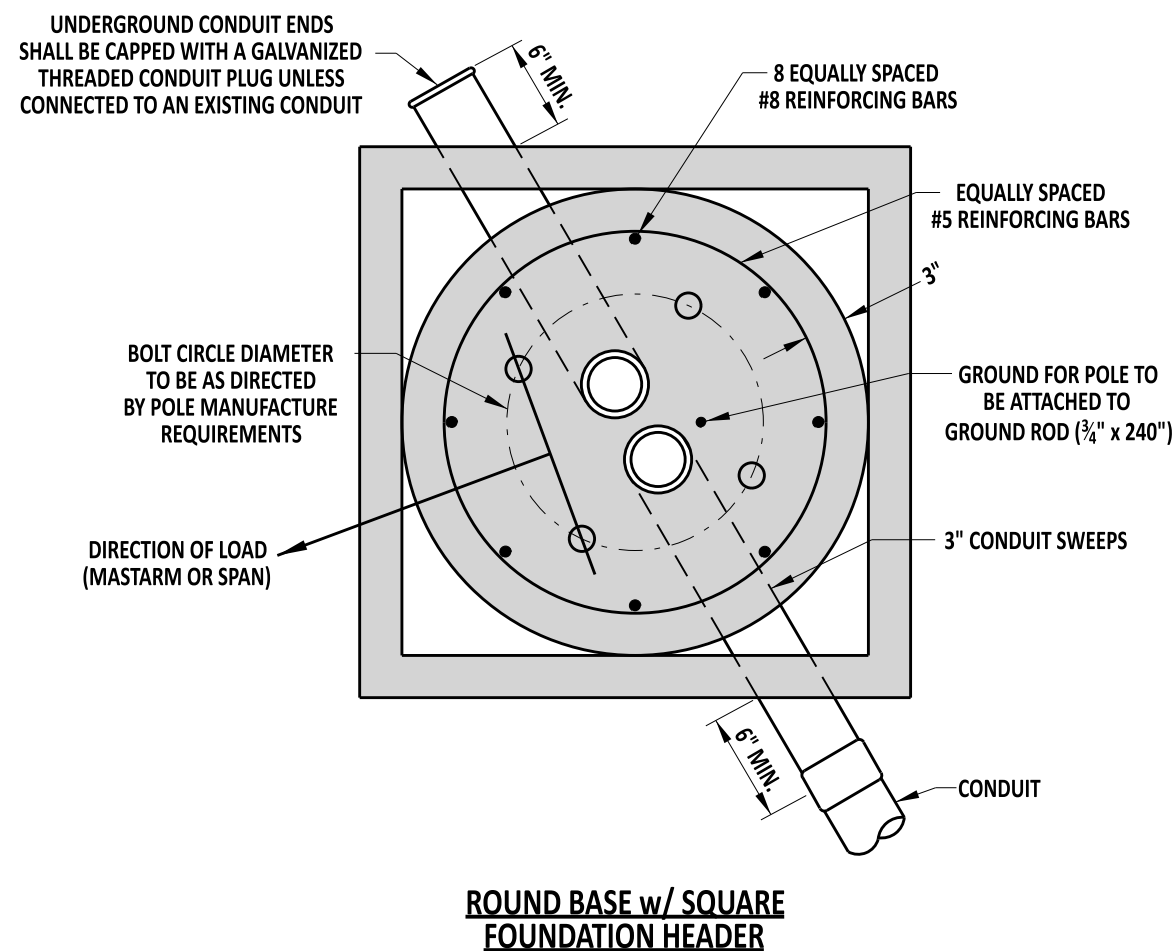
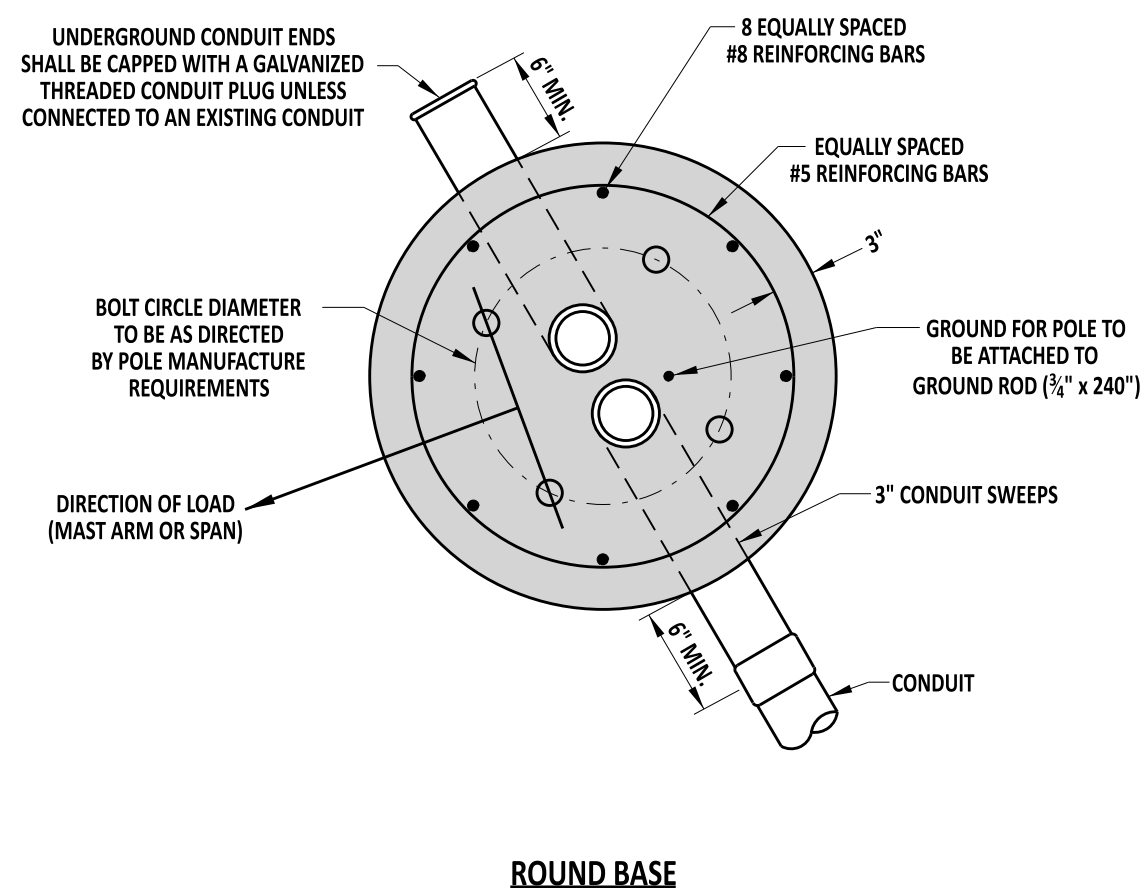
STANDARD NO. T-3 (2022) SHT. 1 OF 1

REVIEWED

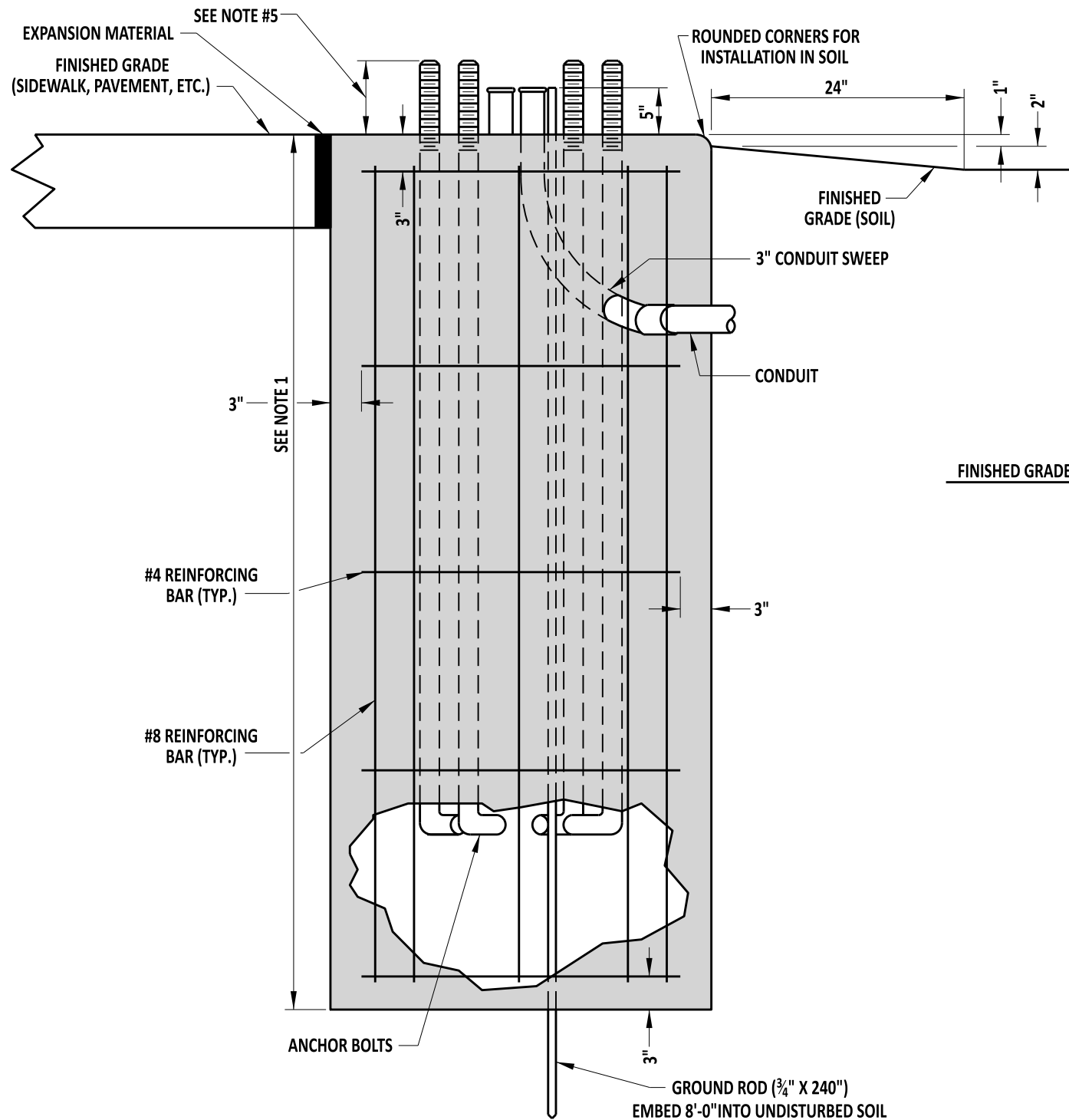
Mike Lee
DEPUTY DIRECTOR - DESIGN
12/16/2022
DATE

APPROVED

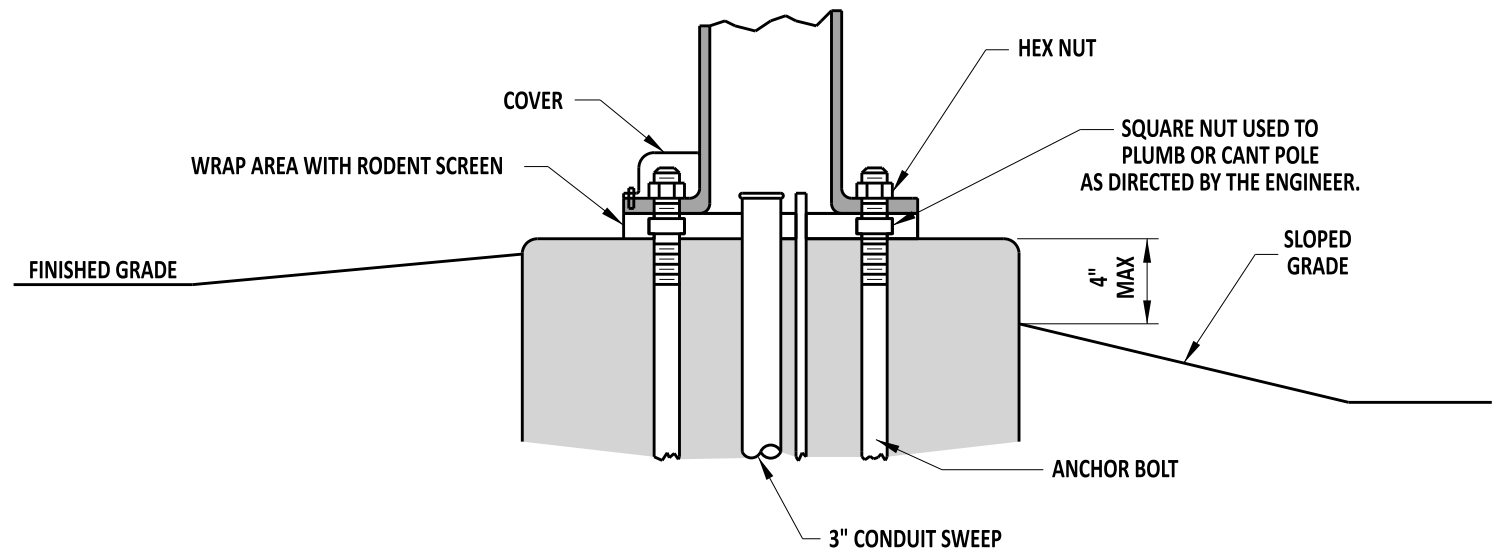
Shay
CHIEF ENGINEER
12/21/2022
DATE



NOTE: SQUARE FOUNDATION HEADER SHALL HAVE A 6" MINIMUM DEPTH.



TYPICAL SECTION (BASES 1,2,2A,2B,3,3A, AND 3B)



TYPICAL INSTALLATION (BASES 1,2,2A,2B,3,3A, AND 3B)

NOTE:

- 1). SEE POLE BASE DATA CHART ON DETAIL T-5, SHEETS 3 AND 4, FOR POLE BASE DIMENSIONS.
- 2). STRAIN POLES AND MAST ARMS UP TO 60' SHALL USE $2\frac{1}{4}$ " ANCHOR BOLTS, SUPPLIED BY THE DEPARTMENT.
- 3). MAST ARMS FROM 70-90' SHALL USE $2\frac{1}{2}$ " ANCHOR BOLTS, SUPPLIED BY THE DEPARTMENT.
- 4). ALL OTHER POLE BASES NOT LISTED SHALL ADHERE TO MANUFACTURER AND DEPARTMENT STANDARDS.
- 5). PER MANUFACTURER SPECIFICATIONS AND DETAILS, THE CONTRACTOR SHALL ENSURE THAT THE FOLLOWING LENGTH OF THREADS ARE EXPOSED PER EACH POLE TYPE:
 - STRAIN: $10\frac{1}{2}$ "
 - B (MAST): $9\frac{1}{2}$ "
 - C (MAST): $11\frac{1}{4}$ "
 - CAMERA: 7"
 - LIGHTING: $4\frac{1}{2}$ "
- 6). MAXIMUM EXPOSED FOUNDATION DEPTH OF 4" AT FINISHED GRADE TO APPROACHING TRAFFIC.



Andrew Sholt
ENGINEERING SUPPORT
RECOMMENDED
12/13/2022
DATE

**POLE BASES - TYPICAL SECTION AND INSTALLATION
(BASES 1, 2, 2A, 2B, 3, 3A, AND 3B)**

STANDARD NO. T-5 (2022) SHT. 2 OF 5

REVIEWED

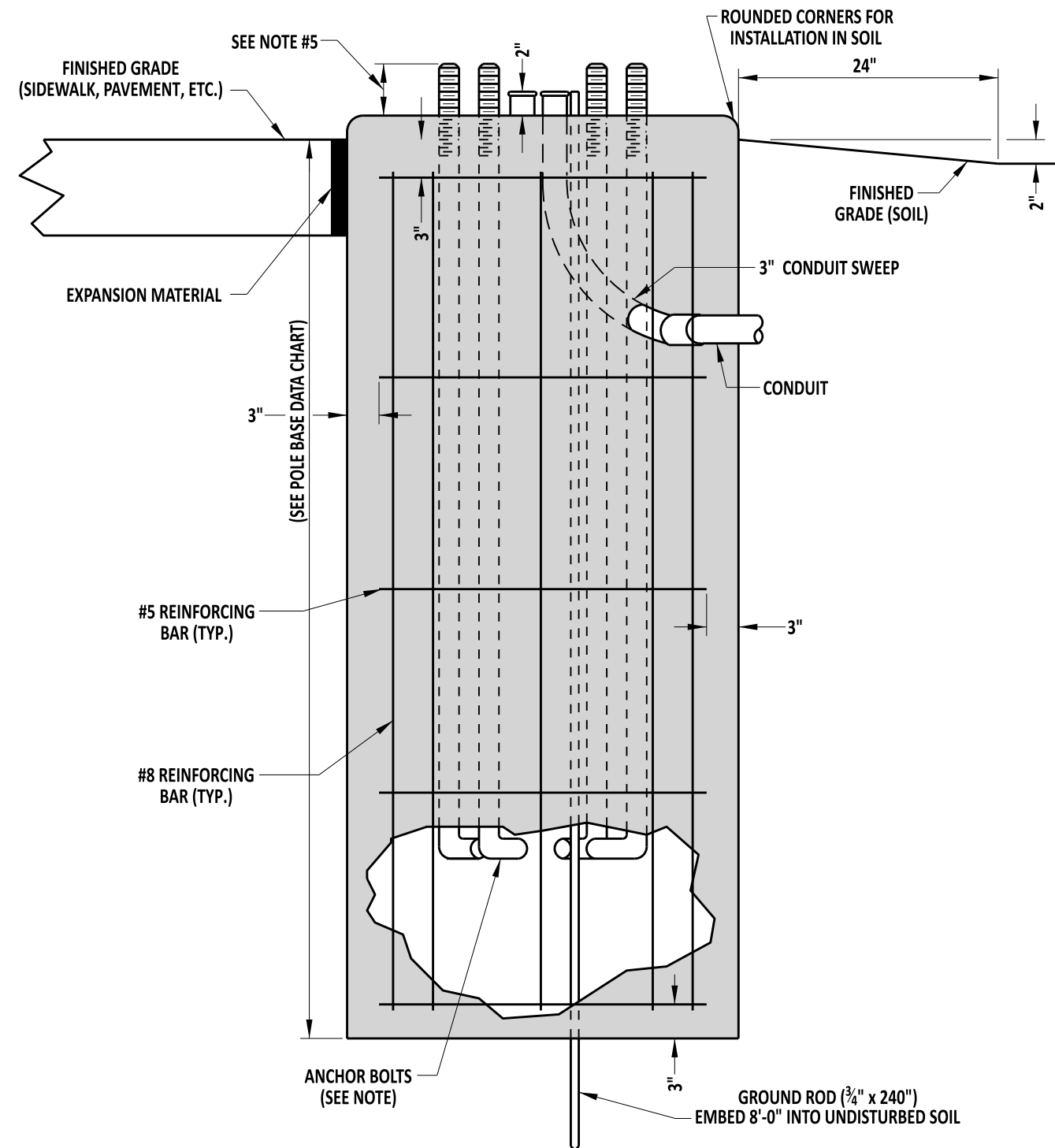
Mike Lee
DEPUTY DIRECTOR - DESIGN

12/16/2022
DATE

APPROVED

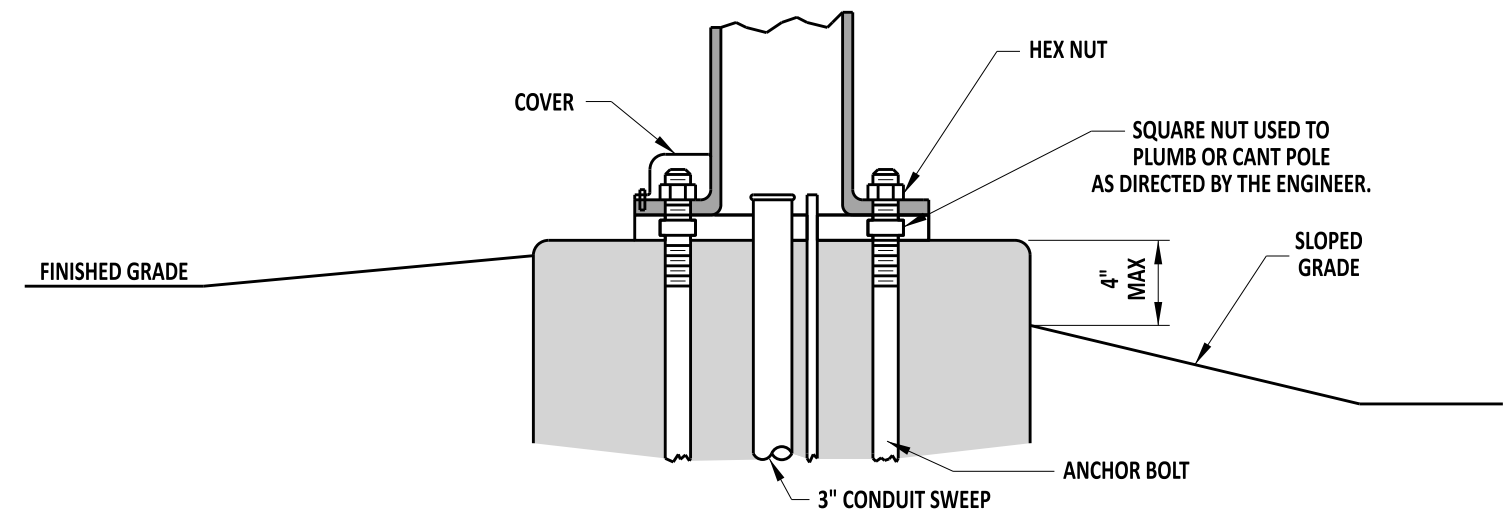
Shrey
CHIEF ENGINEER

12/21/2022
DATE



TYPICAL SECTION (BASE 6A)

POLE BASE DATA CHART					
POLE BASE TYPE #	DIAMETER	DEPTH	#5 HORIZONTAL REINFORCING BARS	#8 VERTICAL REINFORCING BARS	CONDUITS
1	36"	7'-0"	5	8	2 - 3"
2	36"	10'-0"	6	8	2 - 3"
2A	48"	8'-0"	5	8	2 - 3"
2B	60"	7'-0"	5	8	2 - 3"
3	48"	10'-0"	14	17	2 - 3"
3A	48"	12'-0"	17	17	2 - 3"
3B	48"	15'-0"	21	17	2 - 3"
3C	48"	20'-0"	27	17	2 - 3"
4A & 4B	24"	2'-4"	NONE	NONE	2 - 2.5"
6A & 6B	24"	6'-0"	4	8	2 - 3"



TYPICAL INSTALLATION (BASE 6A)

NOTE:

- ANCHOR BOLTS AND BOLT PATTERN FOR TYPE 6 POLE BASES TO BE PROVIDED BY THE MANUFACTURER.
- STRAIN POLES AND MAST ARMS UP TO 60' SHALL USE 2 1/4" ANCHORS BOLTS, SUPPLIED BY THE DEPARTMENT.
- MAST ARMS FROM 70-90' SHALL USE 2 1/2" ANCHOR BOLTS, SUPPLIED BY THE DEPARTMENT.
- ALL OTHER POLE BASES NOT LISTED SHALL ADHERE TO MANUFACTURER AND DEPARTMENT STANDARDS.
- PER MANUFACTURER SPECIFICATIONS AND DETAILS, THE CONTRACTOR SHALL ENSURE THAT THE FOLLOWING LENGTH OF THREADS ARE EXPOSED PER EACH POLE TYPE:

- STRAIN: 10 1/2"
- B (MAST): 9 1/2"
- C (MAST): 11 1/4"
- CAMERA: 7"
- LIGHTING: 4 1/2"

- MAXIMUM EXPOSED FOUNDATION DEPTH OF 4" AT FINISHED GRADE IN ANY ORIENTATION AROUND POLE BASE.



Andrew Sholt
ENGINEERING SUPPORT
RECOMMENDED
12/13/2022
DATE

POLE BASES - TYPICAL SECTION (BASE 6A)
AND POLE BASE DATA CHART

STANDARD NO.

T-5 (2022)

SHT. 3

OF 5

REVIEWED

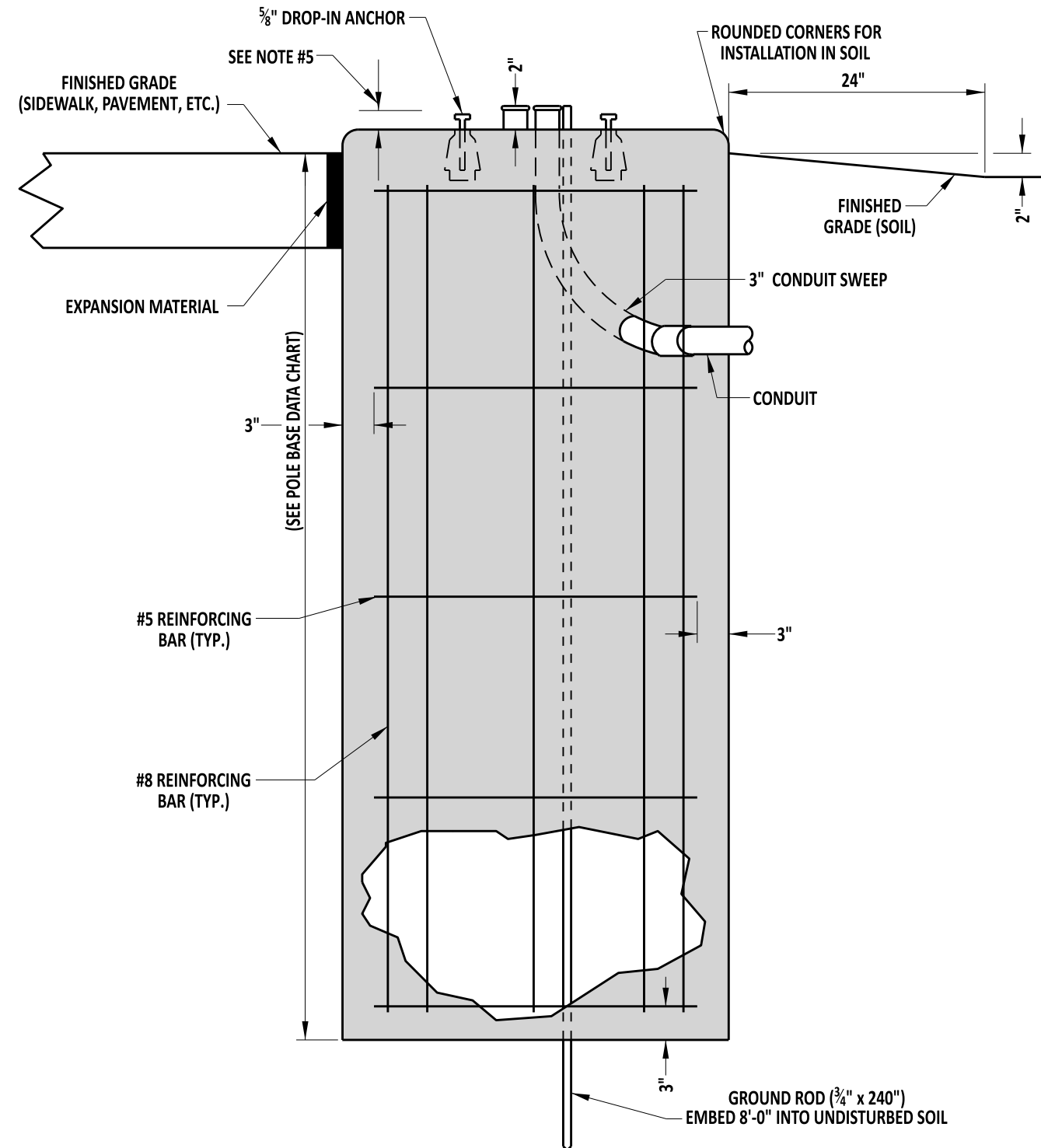
Mike Lee
DEPUTY DIRECTOR - DESIGN

12/16/2022
DATE

APPROVED

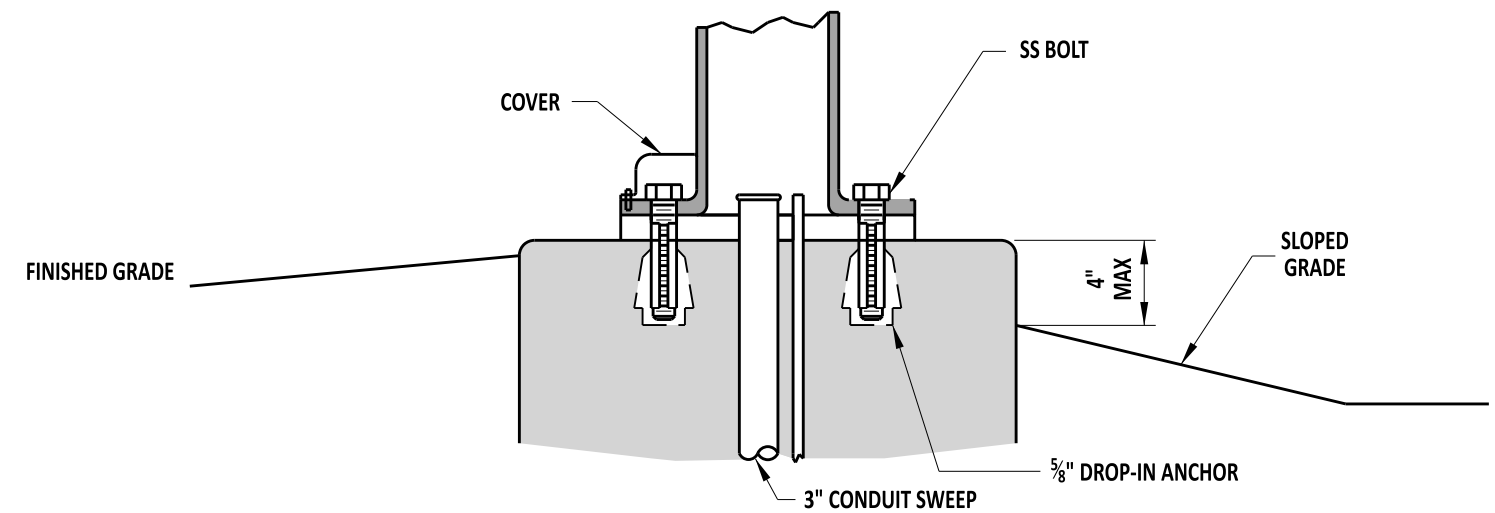
Shrey
CHIEF ENGINEER

12/21/2022
DATE



TYPICAL SECTION (BASE 6B)

POLE BASE DATA CHART					
POLE BASE TYPE #	DIAMETER	DEPTH	#5 HORIZONTAL REINFORCING BARS	#8 VERTICAL REINFORCING BARS	CONDUITS
1	36"	7'-0"	5	8	2 - 3"
2	36"	10'-0"	6	8	2 - 3"
2A	48"	8'-0"	5	8	2 - 3"
2B	60"	7'-0"	5	8	2 - 3"
3	48"	10'-0"	14	17	2 - 3"
3A	48"	12'-0"	17	17	2 - 3"
3B	48"	15'-0"	21	17	2 - 3"
3C	48"	20'-0"	27	17	2 - 3"
4A & 4B	24"	2'-4"	NONE	NONE	2 - 2.5"
6A & 6B	24"	6'-0"	4	8	2 - 3"



TYPICAL INSTALLATION (BASE 6B)

NOTE:

- DROP-IN ANCHORS AND BOLT PATTERN FOR TYPE 6 POLE BASES TO BE PROVIDED BY THE MANUFACTURER.
- STRAIN POLES AND MAST ARMS UP TO 60' SHALL USE 2¼" ANCHORS BOLTS, SUPPLIED BY THE DEPARTMENT.
- MAST ARMS FROM 70-90' SHALL USE 2½" ANCHOR BOLTS, SUPPLIED BY THE DEPARTMENT.
- ALL OTHER POLE BASES NOT LISTED SHALL ADHERE TO MANUFACTURER AND DEPARTMENT STANDARDS.
- PER MANUFACTURER SPECIFICATIONS AND DETAILS, THE CONTRACTOR SHALL ENSURE THAT THE FOLLOWING LENGTH OF THREADS ARE EXPOSED PER EACH POLE TYPE:

- STRAIN: 10½"
- B (MAST): 9½"
- C (MAST): 11¼"
- CAMERA: 7"
- LIGHTING: 4½"

- MAXIMUM EXPOSED FOUNDATION DEPTH OF 4" AT FINISHED GRADE IN ANY ORIENTATION AROUND POLE BASE.



Andrew Sholt
ENGINEERING SUPPORT
RECOMMENDED
12/13/2022
DATE

POLE BASES - TYPICAL SECTION (BASE 6B)
AND POLE BASE DATA CHART

STANDARD NO.

T-5 (2022)

SHT. 4

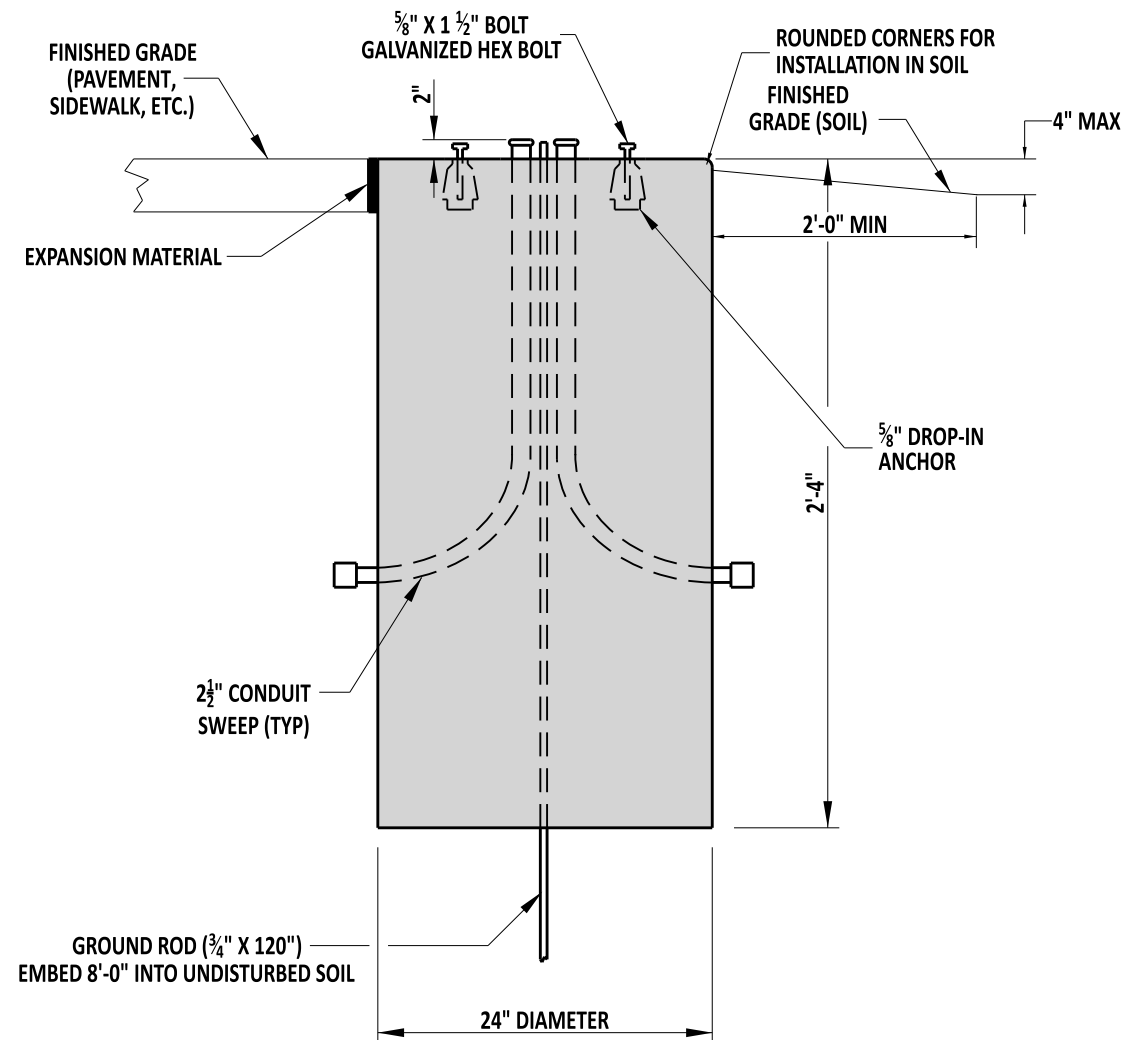
OF 5

REVIEWED

Deputy Director - Design
12/16/2022
DATE

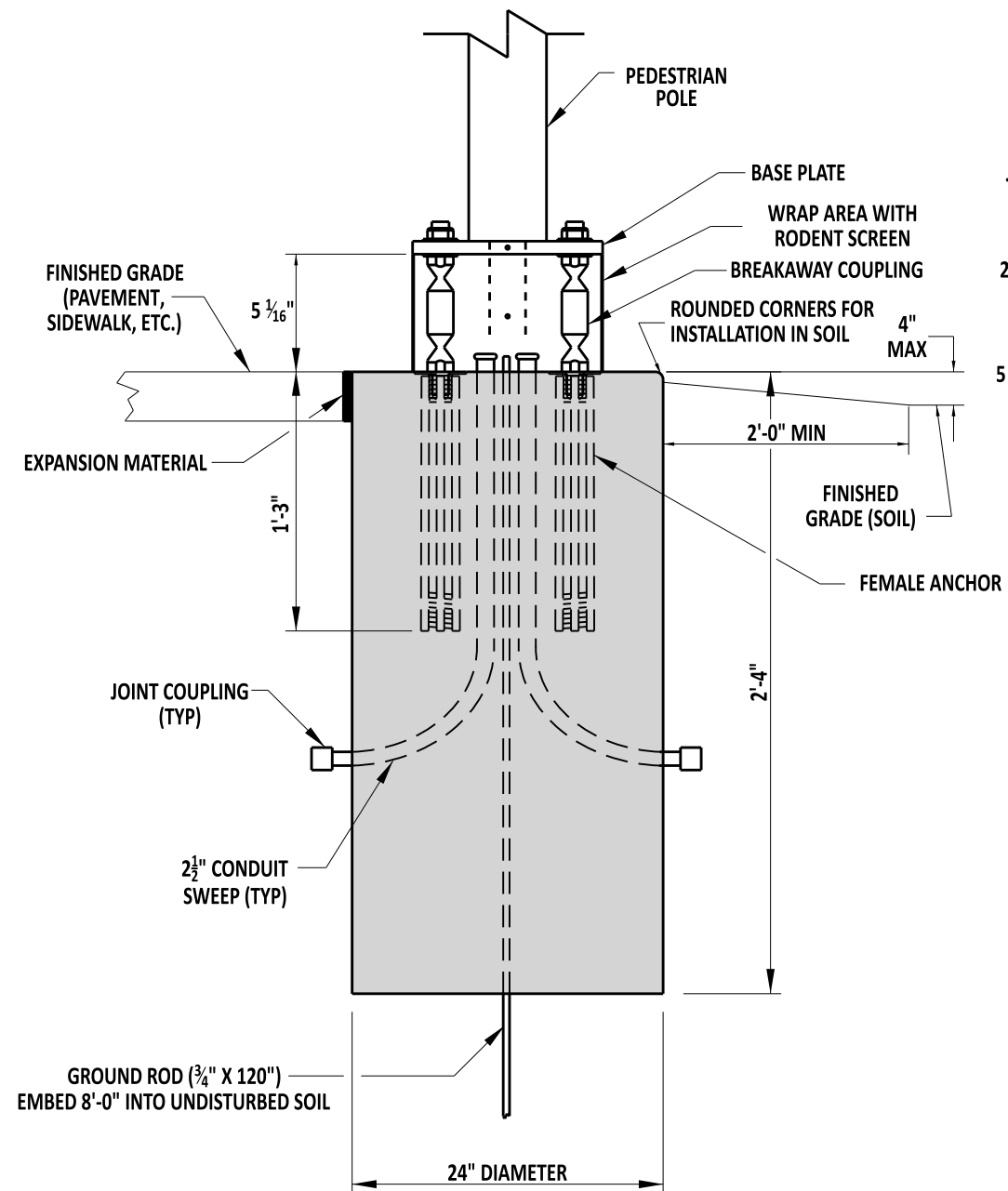
APPROVED

Chief Engineer
12/21/2022
DATE



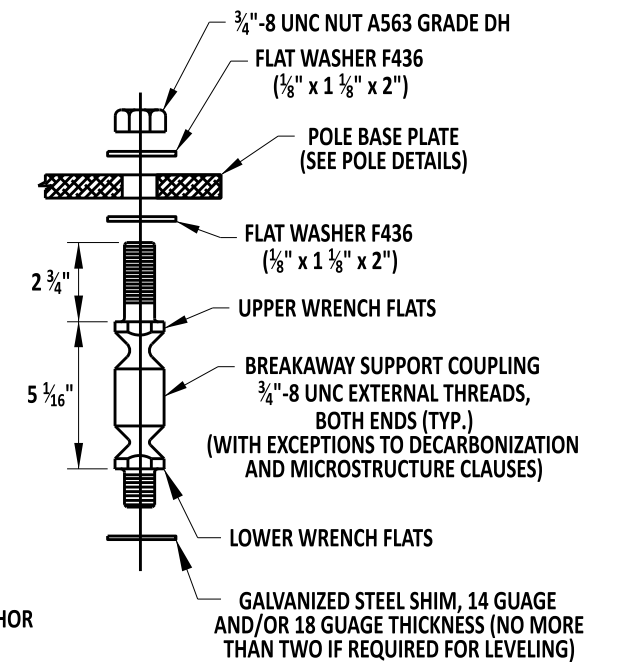
TYPICAL SECTION (BASE 4A)

NOTE:
BOLT PATTERN TO BE PROVIDED BY DELDOT'S SIGNAL CONSTRUCTION INSPECTOR.

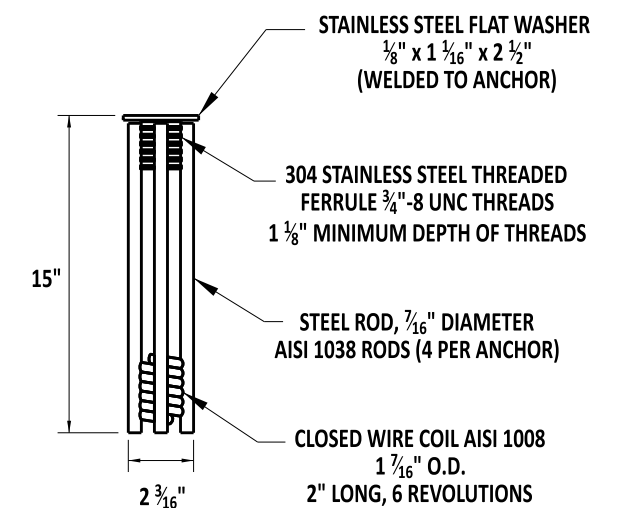


TYPICAL SECTION (BASE 4B)

NOTE:
BOLT PATTERN TO BE PROVIDED BY DELDOT'S SIGNAL CONSTRUCTION INSPECTOR.



BREAKAWAY COUPLING DETAIL



ANCHOR DETAIL

WIRING COLOR CODE FOR #14/16
SIGNAL CABLE FOR SIGNAL HEADS

WIRING COLOR CODE FOR #14/9 TCC

SCALE : NTS

MAIN STREET SIGNALS

WIRE COLORS

SOLID RED
SOLID ORANGE
SOLID GREEN
SOLID WHITE

SIGNAL INDICATION

RED
YELLOW
GREEN
NEUTRAL

SIDE STREET SIGNALS

WIRE COLORS

BLACK TRACER/RED
BLACK TRACER/ORANGE
BLACK TRACER/GREEN
BLACK TRACER/WHITE

SIGNAL INDICATION

RED
YELLOW
GREEN
NEUTRAL

NON-PERMISSIVE
LEFT TURN SIGNALS

MAIN STREET
WIRE COLORS

WHITE TRACER/RED
WHITE TRACER/BLACK
WHITE TRACER/GREEN
WHITE TRACER/BLUE

SIDE STREET
WIRE COLORS

BLACK/RED TRACER
SOLID BLACK
SOLID BLUE
BLUE/BLACK TRACER

SIGNAL INDICATION

RED
YELLOW
GREEN
NEUTRAL

5-SECTION
SIGNAL ARROWS

MAIN STREET
WIRE COLORS

SOLID BLACK
SOLID BLUE

SIDE STREET
WIRE COLORS

BLACK/RED TRACER
BLUE/BLACK TRACER

SIGNAL INDICATION

YELLOW ARROW
GREEN ARROW

MAST ARM:

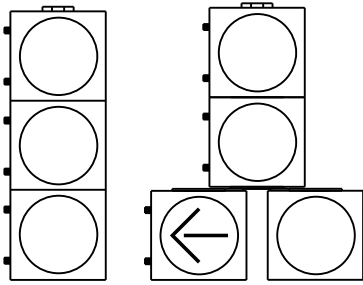
MAIN STREET

WIRE COLORS

SOLID RED
SOLID ORANGE
SOLID GREEN
SOLID WHITE

SIGNAL
INDICATION

RED
YELLOW
GREEN
NEUTRAL



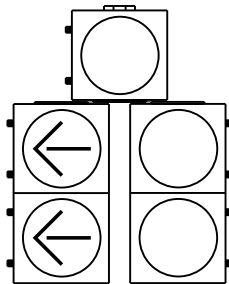
MAIN STREET
PERMISSIVE LEFT

WIRE COLORS

SOLID BLACK
SOLID BLUE
SOLID WHITE

SIGNAL
INDICATION

YELLOW ARROW
GREEN ARROW
NEUTRAL



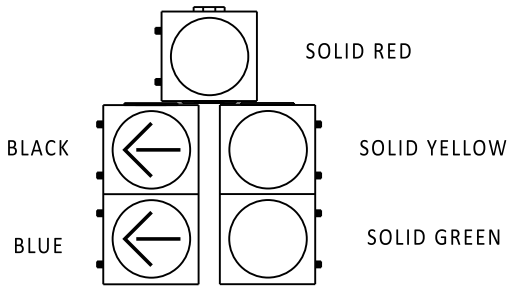
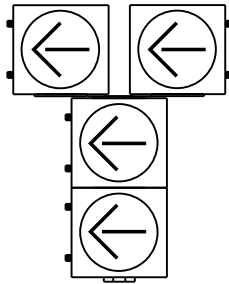
MAIN STREET
FLASHING TOP "T"

WIRE COLORS

BLACK/RED TRACER
SOLID WHITE

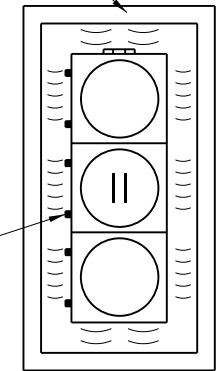
SIGNAL
INDICATION

RED ARROW
NEUTRAL



2" REFLECTIVE
YELLOW STRIP

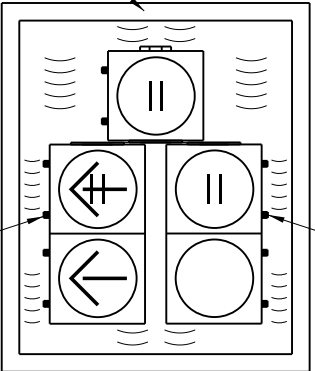
HINGE



ONE-WAY
THREE - SECTION
12" SIGNAL HEADS

2" REFLECTIVE
YELLOW STRIP

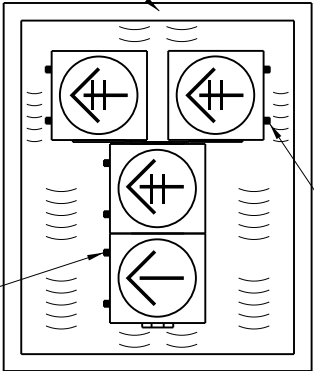
HINGE



ONE-WAY FIVE-SECTION
12" SIGNAL HEADS

2" REFLECTIVE
YELLOW STRIP

HINGE



ONE-WAY
FOUR - SECTION
12" SIGNAL HEADS

NOTES

- 1). HEAD CABLE SHALL BE MARKED WITH THE COLOR DESIGNATED FOR EACH DIRECTION OF TRAVEL. RED/NORTH, YELLOW/ SOUTH, GREEN/EAST, BLUE/WEST.
- 2). SIDE STREET SIGNAL HEADS SHALL BE SPICED INTO THE BLACK TRACER WIRES INSTEAD OF SOLID COLOR WIRES.
- 3). ALL SIGNAL HEADS INSTALLED ON MAST ARMS SHALL HAVE OWN SIGNAL CABLE AND SHALL BE SPICED AT THE BASE.
- 4). ALL INSTALLATIONS SHALL CONTAIN ONE SPLICE PER SIGNAL HEAD.
- 5). ALL BOLTS SHALL BE STAINLESS STEEL.
- 6). ALL BACKPLATES SHALL BE POWDER-COATED ALUMINUM.
- 7). ALL BACKPLATES SHALL BE OUTLINED WITH A 2" REFLECTIVE YELLOW STRIP.

LEGEND:

|| LOCATION OF TERMINAL BLOCK



Andrew Sholt
ENGINEERING SUPPORT

12/13/2022
DATE

RECOMMENDED

WIRING INSTALLATION TYPICALS - WIRING COLOR CODES

STANDARD NO. T-9 (2022)

SHT. 4 OF 4

REVIEWED

DEPUTY DIRECTOR - DESIGN

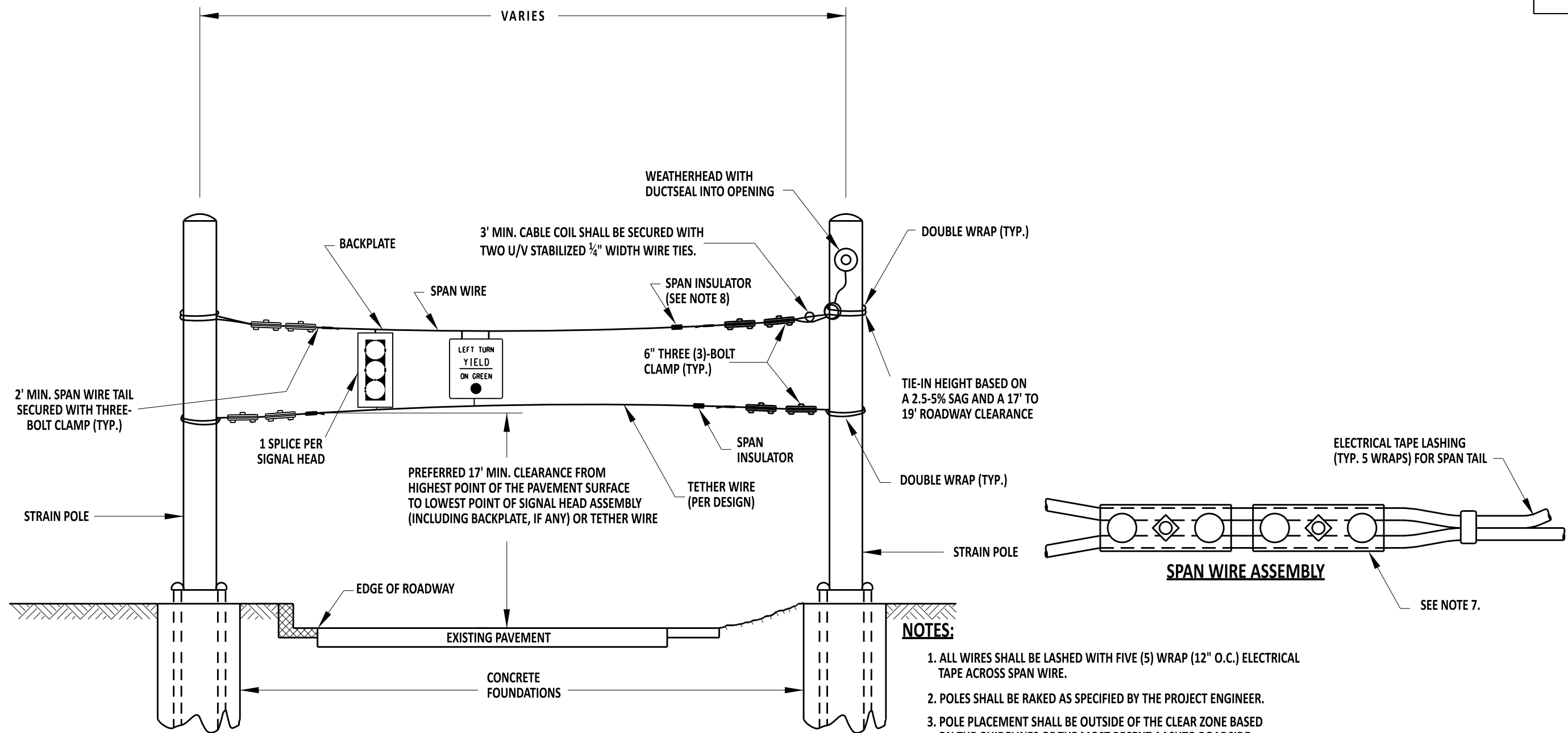
12/16/2022
DATE

APPROVED

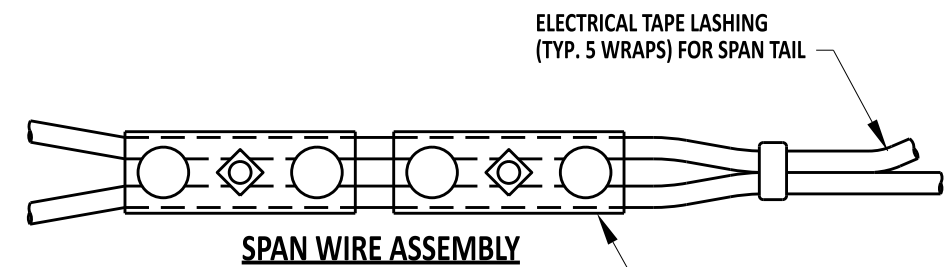
CHIEF ENGINEER

12/21/2022
DATE

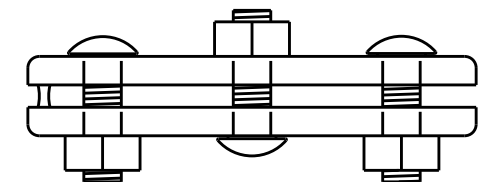
12/13/2022

**NOTES:**

1. ALL WIRES SHALL BE LASHED WITH FIVE (5) WRAP (12" O.C.) ELECTRICAL TAPE ACROSS SPAN WIRE.
2. POLES SHALL BE RAKED AS SPECIFIED BY THE PROJECT ENGINEER.
3. POLE PLACEMENT SHALL BE OUTSIDE OF THE CLEAR ZONE BASED ON THE GUIDELINES OF THE MOST RECENT AASHTO ROADSIDE DESIGN GUIDE.
4. SPAN WIRE SHALL BE PLACED UNDER ALL RISERS.
5. SPAN WIRE SHALL BE 7/16" SEVEN (7)-WIRE GAL. STEEL STRAND. (STRENGTH SHALL BE SIEMENS-MARTIN 6.950 LBS.)
6. TETHER WIRE SHALL BE 1/4" SEVEN (7)-WIRE GAL. STEEL STRAND. (STRENGTH SHALL BE SIEMENS-MARTIN 3.150 LBS.)
7. TWO (2) THREE-BOLT CLAMPS SHALL BE USED FOR EACH END OF THE SPANS.
8. SPAN INSULATOR SHALL BE INSTALLED ON THE SPAN(S) CLOSEST TO THE CABINET, 15-20 FEET FROM THE POLE (OR AS DIRECTED BY THE ENGINEER).
9. REFER TO TRAFFIC DESIGN MANUAL FOR MORE INFORMATION PERTAINING TO VERTICAL CLEARANCE FOR SIGNAL HEADS.



SEE NOTE 7.

**3-BOLT CLAMP**

Andrew Shott
ENGINEERING SUPPORT
RECOMMENDED
12/13/2022
DATE

SPAN WIRE ASSEMBLY

STANDARD NO.

T-12 (2022)

SHT. 3

OF 3

REVIEWED

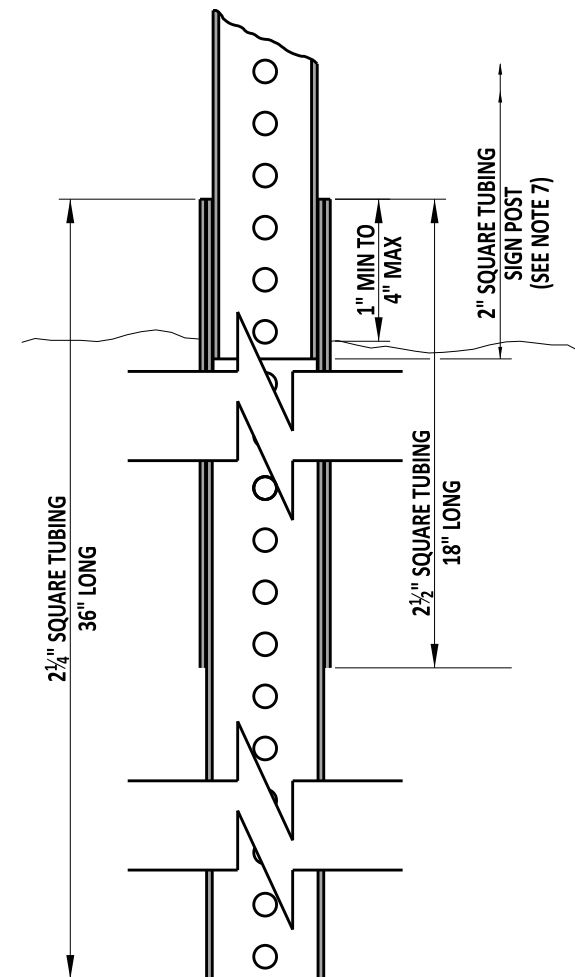
Mike Lee
DEPUTY DIRECTOR - DESIGN

12/16/2022
DATE

APPROVED

Shrey
CHIEF ENGINEER

12/21/2022
DATE



The diagram illustrates the typical assembly of a street sign. A perspective view shows a rectangular sign with the text "Delaware Ave." mounted on a vertical post. The sign is held in place by a bracket that is pinned to the post. A callout line points to the bracket with the text "STREET BLADES MUST BE PINNED TOGETHER AT EACH END". Another callout line points to the post with the text "2\" x 2\" STEEL POST". Below this, a cross-sectional view shows the sign bracket, the steel post, and a spacer. Dimension lines indicate the length of the "RIVET" and the "SPACER".

TYPICAL ASSEMBLY

RIVET

2" x 2" STEEL POST

STREET BLADES MUST BE PINNED TOGETHER AT EACH END

1 $\frac{13}{16}$ " x $\frac{1}{4}$ " SPACER

PIN ASSEMBLY

NOTES:

- 1). SQUARE TUBES ARE TO BE FORMED FROM GALVANIZED SHEET STRUCTURAL (PHYSICAL) QUALITY, ASTM A 446, GRADE A, COATING DESIGNATION G 90, REGULAR SPANGLE, OR HOT ROLLED CARBON SHEET STEEL STRUCTURAL (PHYSICAL) QUALITY, ASTM A 57, GRADE 33.
- 2). NOMINAL OUTSIDE DIMENSIONS ARE AS FOLLOWS:
 - A). 2" x 2" +/- 0.008
 - B). 2¼" x 2¼" +/- 0.010
 - C). 2½" x 2½" +/- 0.010
- 3). ALL FOUR SIDES ARE TO HAVE EVENLY SPACED 7/16" DIAMETER HOLES ON 1" CENTERS THE ENTIRE LENGTH OF THE TUBE.
- 4). STANDARD CORNER RADIUS SHALL BE 5/32".
- 5). THE FASTENERS TO BE SUPPLIED UNDER THIS SPECIFICATION SHALL BE 5/16", GRADE 5 UNC CORNER BOLTS WITH CADMIUM OR ZINC PLATING. INSTALLATION OF SIGNS SHALL BE WITH 3/8" x 2½" BOLT WITH LOCKNUT AND WASHER.
- 6). THE CONTRACTOR SHALL PROVIDE AND INSTALL PVC SLEEVES (4" INSIDE DIAMETER MINIMUM, 6" INSIDE DIAMETER MAXIMUM) IN PROPOSED CONCRETE SIDEWALKS, ISLANDS, AND MEDIANS FOR FUTURE TRAFFIC SIGN POSTS AS DIRECTED BY THE ENGINEER. THE LOWER END OF THE SLEEVE SHALL BE SET ON TOP OF THE SOIL.
- 7). THE SIGN POST SHALL EXTEND A MINIMUM OF 4" INTO THE 2½" SQUARE TUBING.



Andrew Shost
ENGINEERING SUPPORT

12/13/2022
DATE

RECOMMENDED

BREAKWAY SIGN POST AND PIN ASSEMBLY DETAILS

STANDARD NO.	T-15 (2022)	SHT.	1	OF	1
--------------	-------------	------	---	----	---


REVIEWED

DEPUTY DIRECTOR - DESIGN

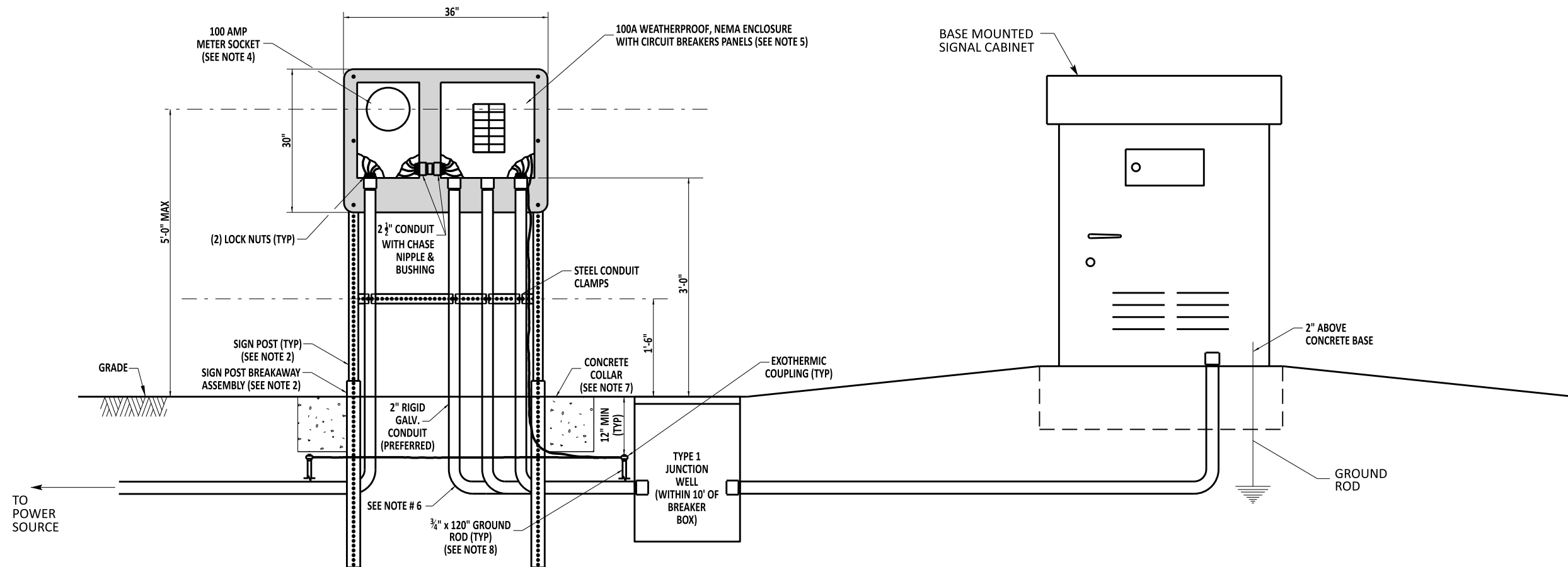
SCALE : NTS

12/16/2022

APPROVED


CHIEF ENGINEER

DATE 12/21/2022

STANDARD INSTALLATION (3+ DEVICES)**NOTES:**

- 1). INSTALLATION OF EQUIPMENT BETWEEN SERVICE PEDESTAL AND CONTROLLER CABINET SHALL BE AS PER CONTRACT DRAWINGS/DETAILS.
- 2). SEE DETAIL T-15, SHEET 1, FOR SIGN POST AND BREAKAWAY ASSEMBLY DETAILS.
- 3). ATTACH ALUMINUM PANEL TO SIGN POSTS WITH (6) $\frac{5}{16}$ " x $2\frac{1}{2}$ " LONG GRADE 5 BOLTS, FLAT WASHERS, AND NYLON LOCK NUTS, 3 ON EACH SIDE.
- 4). MOUNT METER SOCKET TO ALUMINUM PANEL WITH (4) $\frac{5}{16}$ " x $\frac{3}{4}$ " STAINLESS STEEL BOLTS AND NYLON LOCK NUTS.
- 5). MOUNT CIRCUIT BREAKER BOX TO ALUMINUM PANEL WITH (4) $\frac{5}{16}$ " x $\frac{3}{4}$ " STAINLESS STEEL BOLTS AND NYLON LOCK NUTS.
- 6). ALL CONDUITS AND OTHER ASSOCIATED PIECES SHALL BE 2" RIGID GALVANIZED CONDUIT UNLESS SPECIFIED DIFFERENTLY ON THE PLANS OR BY LOCAL UTILITY COMPANY. ALL CONDUITS SHALL BE INSTALLED FROM ENCLOSURE TO TYPE 1 JUNCTION WELL. JUNCTION WELL SHALL BE PLACED WITHIN 10' OF SERVICE PEDESTAL (OR PER PLAN).
- 7). CONCRETE COLLAR SHALL CONTAIN 25 LBS OF CONCRETE AT EACH LEG JUST BELOW GRADE AS DIRECTED BY INSPECTOR.
- 8). GROUND ROD SPREAD SHALL BE TWICE THE LENGTH OF THE GROUND ROD.



Andrew Sholt
ENGINEERING SUPPORT

12/13/2022
DATE

RECOMMENDED

**ELECTRICAL SERVICE PEDESTAL -
SIGNAL & ITS COMPONENT INSTALLATIONS - 100 AMP (3+ DEVICES)**

STANDARD NO. T-17 (2022)

SHT. 1 OF 7

REVIEWED

Mike Lee
DEPUTY DIRECTOR - DESIGN

12/16/2022
DATE

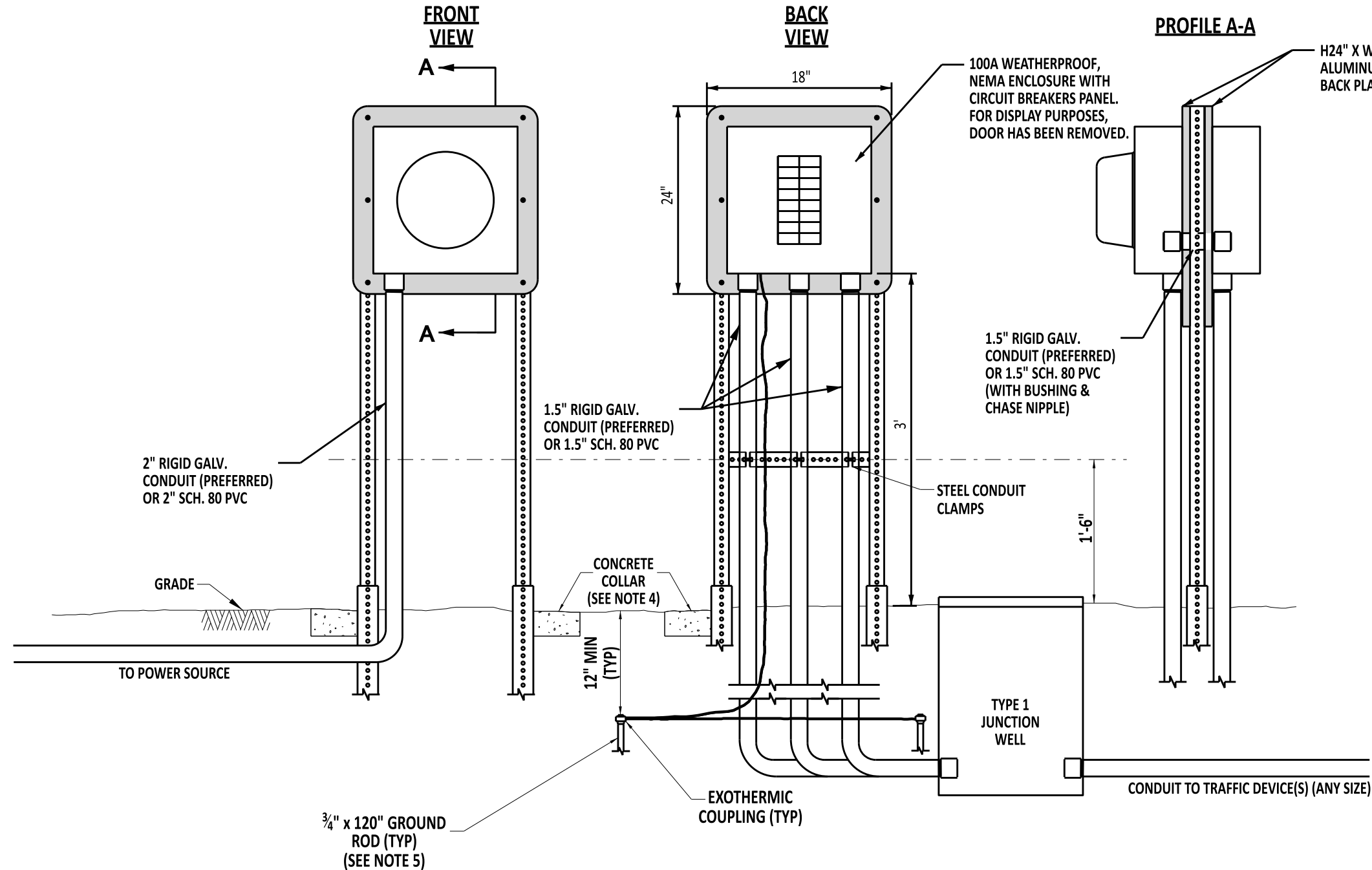
APPROVED

Shrey
CHIEF ENGINEER

12/21/2022
DATE

CONDENSED INSTALLATION (3+ DEVICES)

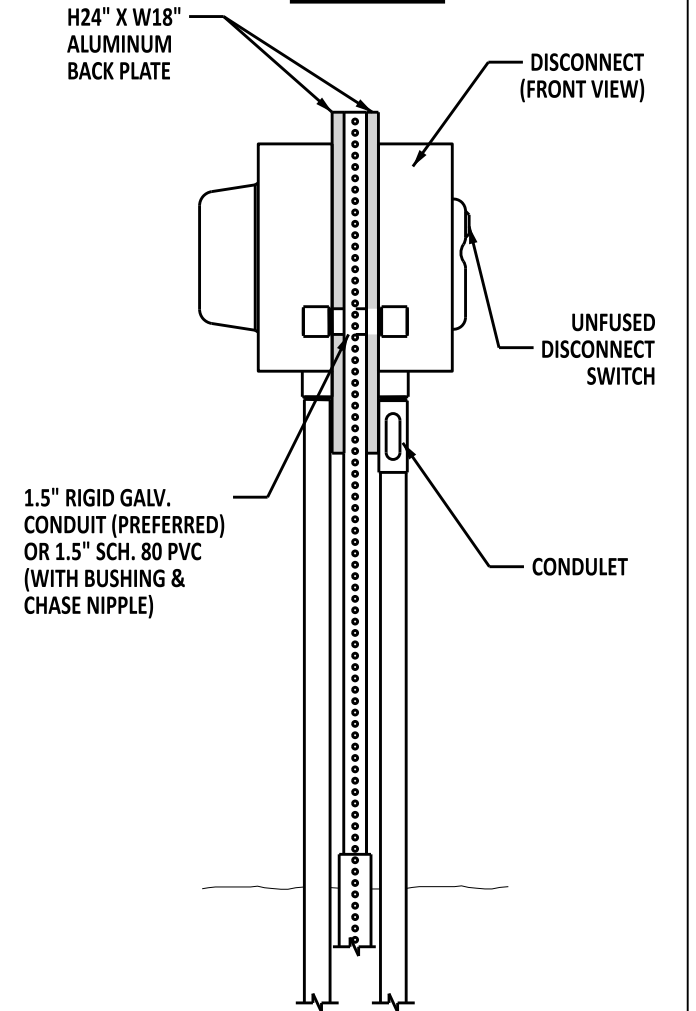
CONDENSED INSTALLATION (UP TO 2 DEVICES)



NOTES

- 1.) PEDESTAL SHALL BE USED WHEN ALL DEVICES ARE CLOSE TO POWER SOURCE.
- 2.) PEDESTAL SHALL BE 5 FEET FROM JUNCTION WELL.
- 3.) TO BE USED FOR 3 OR MORE DEVICES WITHIN CONDENSED SPACE.
- 4.) CONCRETE COLLAR SHALL CONTAIN 25 LBS OF CONCRETE AT EACH LEG JUST BELOW GRADE AS DIRECTED BY INSPECTOR.
- 5.) GROUND ROD SPREAD SHALL BE TWICE THE LENGTH OF THE GROUND ROD.

PROFILE A-A



SPECIALTY DISCONNECT TYPICAL

NOTES

- 1.) TO BE USED FOR 2 OR LESS DEVICES WITHIN CONDENSED SPACE.



Andrew Sholt
ENGINEERING SUPPORT
RECOMMENDED
12/13/2022
DATE

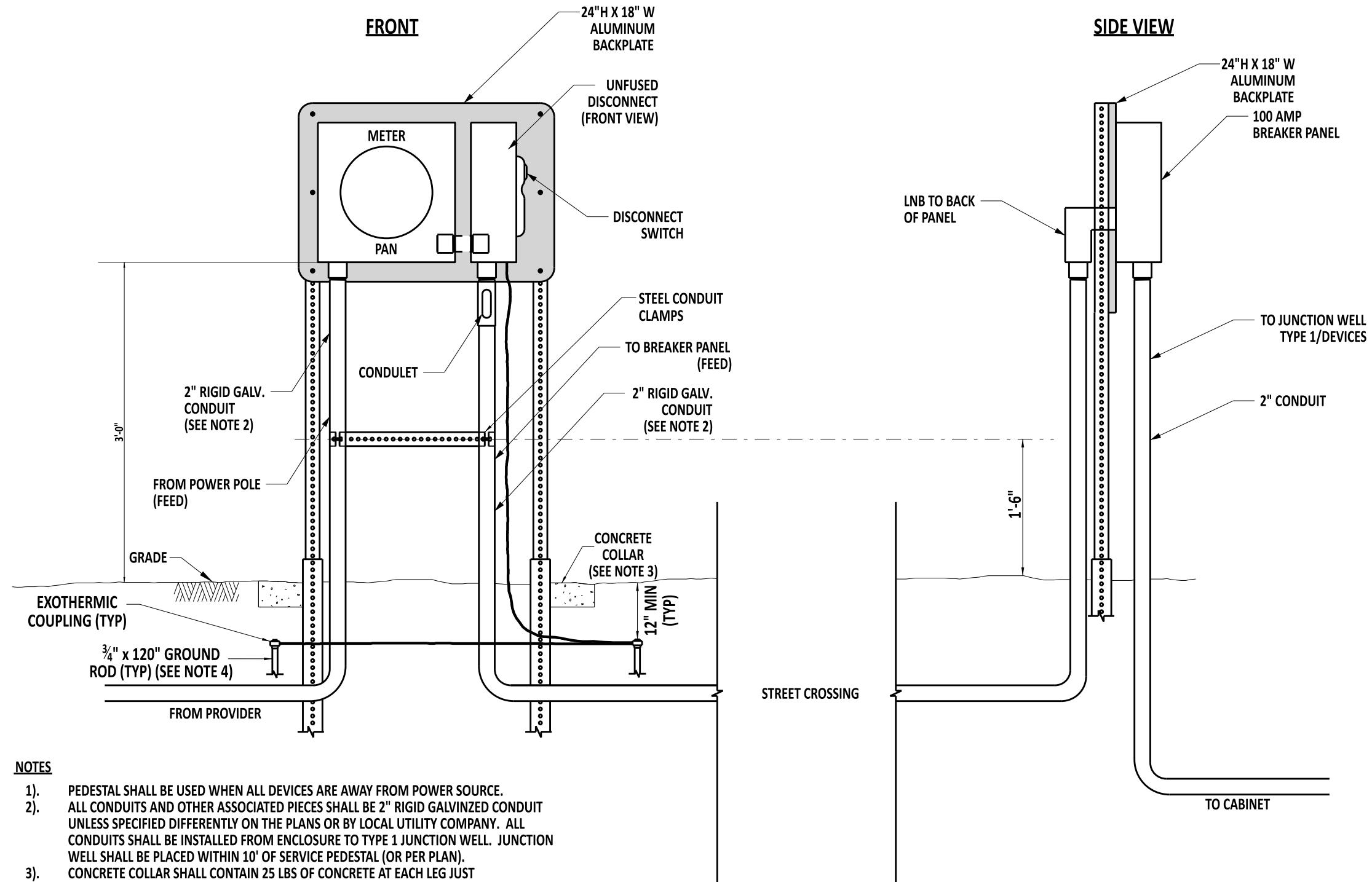
ELECTRICAL SERVICE PEDESTAL -
SIGNAL & ITS COMPONENT INSTALLATIONS - 100 AMP (CONDENSED)
STANDARD NO. T-17 (2022)
SHT. 2 OF 7

REVIEWED
APPROVED

Mike Lee
DEPUTY DIRECTOR - DESIGN
Shay
CHIEF ENGINEER

12/16/2022
DATE

12/21/2022
DATE

STANDARD INSTALLATION (UP TO 2 DEVICES)**NOTES**

- 1). PEDESTAL SHALL BE USED WHEN ALL DEVICES ARE AWAY FROM POWER SOURCE.
- 2). ALL CONDUITS AND OTHER ASSOCIATED PIECES SHALL BE 2" RIGID GALVANIZED CONDUIT UNLESS SPECIFIED DIFFERENTLY ON THE PLANS OR BY LOCAL UTILITY COMPANY. ALL CONDUITS SHALL BE INSTALLED FROM ENCLOSURE TO TYPE 1 JUNCTION WELL. JUNCTION WELL SHALL BE PLACED WITHIN 10' OF SERVICE PEDESTAL (OR PER PLAN).
- 3). CONCRETE COLLAR SHALL CONTAIN 25 LBS OF CONCRETE AT EACH LEG JUST BELOW GRADE AS DIRECTED BY INSPECTOR.
- 4). GROUND ROD SPREAD SHALL BE TWICE THE LENGTH OF THE GROUND ROD.



Andrew Shott
ENGINEERING SUPPORT

12/13/2022
DATE

RECOMMENDED

**ELECTRICAL SERVICE PEDESTAL -
SIGNAL & ITS COMPONENT INSTALLATIONS - 100 AMP (UP TO 2 DEVICES)**

STANDARD NO. T-17 (2022)

SHT. 3 OF 7

REVIEWED

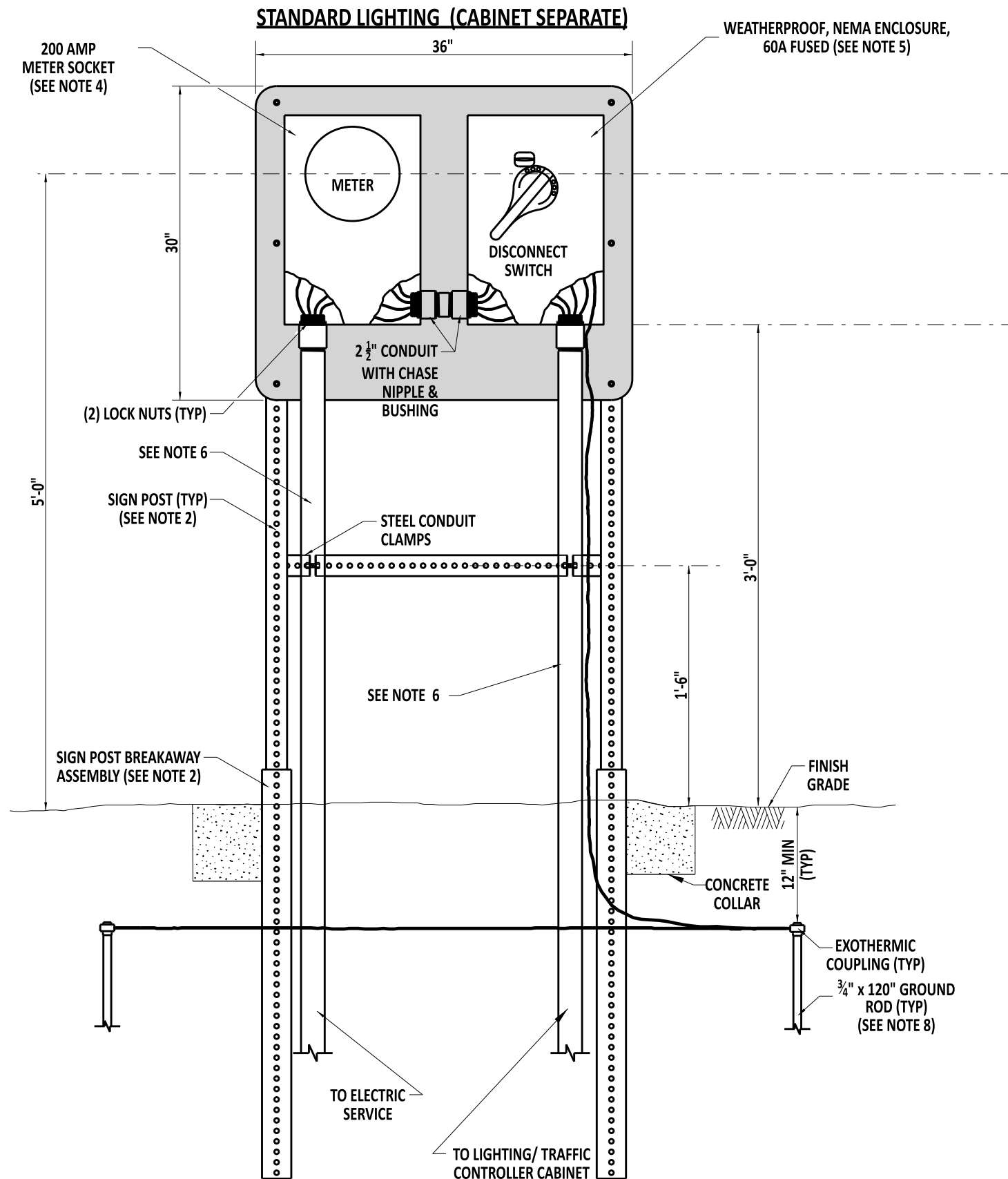
Mike Lee
DEPUTY DIRECTOR - DESIGN

12/16/2022
DATE

APPROVED

Shrey
CHIEF ENGINEER

12/21/2022
DATE



SCALE : NTS

NOTES:

- 1). INSTALLATION OF EQUIPMENT BETWEEN SERVICE PEDESTAL AND LIGHTING/CONTROLLER CABINET SHALL BE AS PER CONTRACT DRAWINGS/DETAILS.
- 2). SEE DETAIL T-15, SHEET 1, FOR SIGN POST AND BREAKAWAY ASSEMBLY DETAILS.
- 3). ATTACH ALUMINUM PANEL TO SIGN POSTS WITH (6) 5/16" x 2 1/2" LONG GRADE 5 BOLTS, FLAT WASHERS, AND NYLON LOCK NUTS, 3 ON EACH SIDE.
- 4). MOUNT METER SOCKET TO ALUMINUM PANEL WITH (4) 5/16" x 3/4" STAINLESS STEEL BOLTS AND NYLON LOCK NUTS.
- 5). MOUNT CIRCUIT BREAKER BOX TO ALUMINUM PANEL WITH (4) 5/16" x 3/4" STAINLESS STEEL BOLTS AND NYLON LOCK NUTS.
- 6). ALL CONDUITS AND OTHER ASSOCIATED PIECES SHALL BE 2" RIGID GALVINIZED CONDUIT UNLESS SPECIFIED DIFFERENTLY ON THE PLANS OR BY LOCAL UTILITY COMPANY. ALL CONDUITS SHALL BE INSTALLED FROM ENCLOSURE TO TYPE 1 JUNCTION WELL. JUNCTION WELL SHALL BE PLACED WITHIN 10' OF SERVICE PEDESTAL (OR PER PLAN).
- 7). CONCRETE COLLAR SHALL CONTAIN 25 LBS OF CONCRETE AT EACH LEG JUST BELOW GRADE AS DIRECTED BY INSPECTOR.
- 8). GROUND ROD SPREAD SHALL BE TWICE THE LENGTH OF THE GROUND ROD.



Andrew Sholt
ENGINEERING SUPPORT
RECOMMENDED
12/13/2022
DATE

ELECTRICAL SERVICE PEDESTAL - SIGNAL & ITS COMPONENT INSTALLATIONS
200 AMP - STANDARD LIGHTING COMPONENT INSTALLATIONS
STANDARD NO. T-17 (2022) SHT. 4 OF 7

REVIEWED
APPROVED

Mike Lee
DEPUTY DIRECTOR - DESIGN
12/16/2022
DATE
Shrey
CHIEF ENGINEER
12/21/2022
DATE



- 1). SEE DETAIL T-15, SHEET 1, FOR SIGN POST AND BREAKAWAY ASSEMBLY DETAILS.
- 2). ATTACH ALUMINUM PANEL TO SIGN POSTS WITH (6) $\frac{5}{16}$ " x $2\frac{1}{2}$ " LONG GRADE 5 BOLTS, FLAT WASHERS, AND NYLON LOCK NUTS, 3 ON EACH SIDE.
- 3). MOUNT METER SOCKET TO ALUMINUM PANEL WITH (4) $\frac{5}{16}$ " x $\frac{3}{4}$ " STAINLESS STEEL BOLTS AND NYLON LOCK NUTS.
- 4). MOUNT ENCLOSED CIRCUIT BREAKER TO ALUMINUM PANEL WITH (4) $\frac{5}{16}$ " x $\frac{3}{4}$ " STAINLESS STEEL BOLTS AND NYLON LOCK NUTS.
- 5). ALL CONDUITS AND OTHER ASSOCIATED PIECES SHALL BE 2" GALVANIZED UNLESS SPECIFIED DIFFERENTLY ON THE PLANS OR BY LOCAL UTILITY COMPANY.
- 6). WEATHERPROOF LIGHTING CONTROL CABINET SHALL CONTAIN LIGHTING CONTACTOR AND APPROPRIATE OVERCURRENT PROTECTION FOR LIGHTING CIRCUIT(S) BEING USED.
- 7). THE DESIGNER SHALL COORDINATE WITH THE APPLICABLE MAINTENANCE DISTRICT TO DETERMINE THE LOCATION OF THE PHOTOCONTROL DEVICE ON THE CABINET.
- 8). USE OF THESE DETAILS ARE MEANT FOR SMALLER INTERSECTION LIGHTING SYSTEMS, OR ROADWAY LIGHTING INSTALLATIONS WITH LOADS APPROXIMATELY 12 FIXTURES OR LESS. FOR LARGER LIGHTING INSTALLATIONS, SEE DETAIL T-17, SHEET 4.
- 9). CONCRETE COLLAR SHALL CONTAIN 25 LBS OF CONCRETE AT EACH LEG JUST BELOW GRADE AS DIRECTED BY INSPECTOR.
- 10). GROUND ROD SPREAD SHALL BE TWICE THE LENGTH OF THE GROUND ROD.



Andrew Shott
ENGINEERING SUPPORT

RECOMMENDED

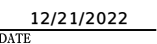

DEPUTY DIRECTOR - DESIGN

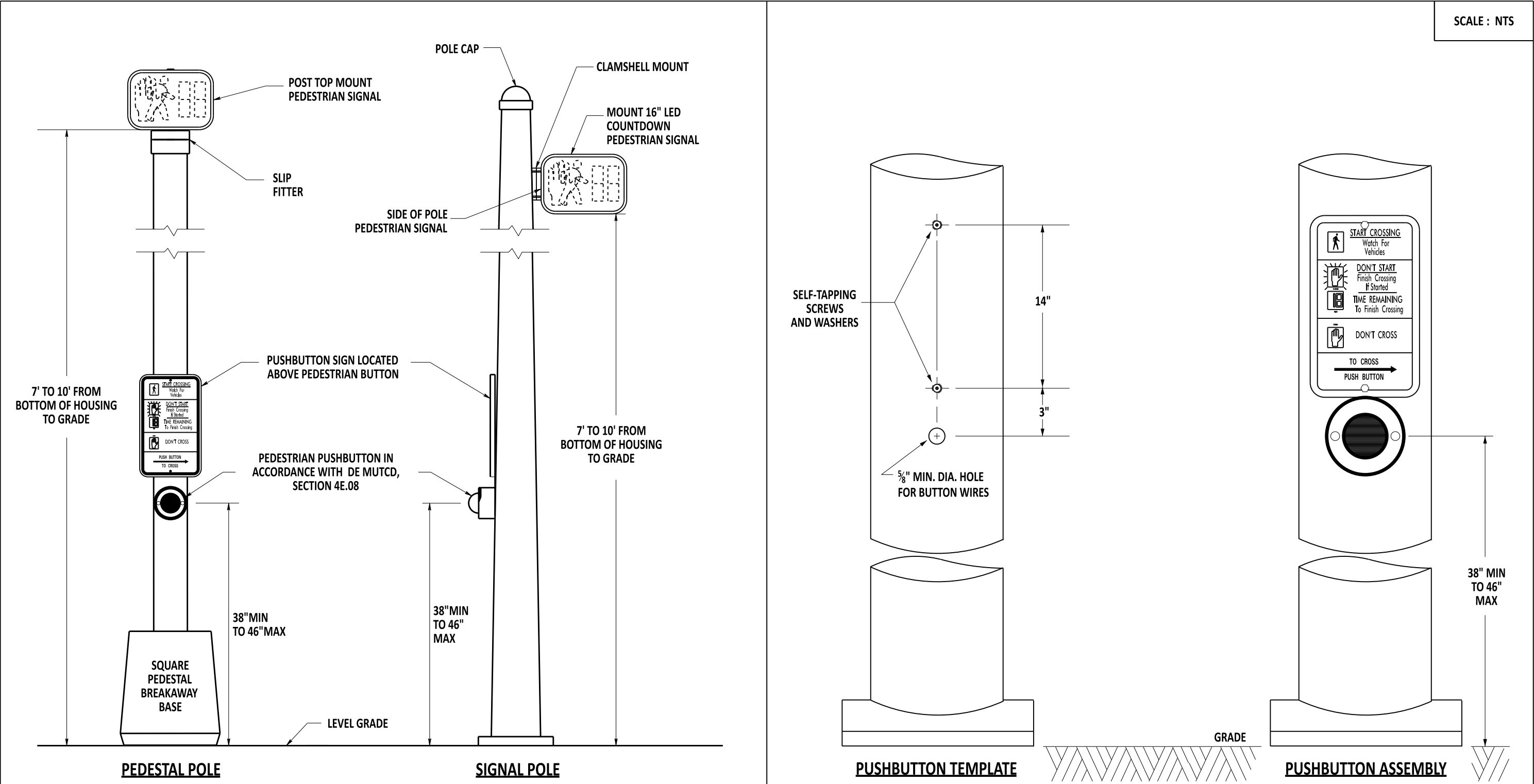
CHIEF ENGINEER

12/13/2022



- CONDENSED TRAFFIC (CABINET INCLUDED)**





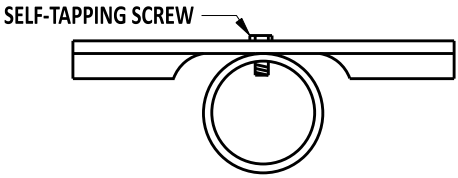
NOTES:

- 1). WHEN CUTTING IS REQUIRED, CONTRACTOR SHALL CONFIRM PROPER HEIGHT OF PEDESTAL IS MAINTAINED PRIOR TO CUTTING POLE.
- 2). REFER TO POLE MOUNTING FOR PEDESTRIAN SIGNAL HEADS STANDARD PLATES FOR DETAILS.
- 3). EXTEND THE PEDESTRIAN PATH TO THE VERTICAL PROJECTION LIMIT OF THE PEDESTRIAN PUSHBUTTON WHEN THE PUSHBUTTON IS ONLY ACCESSIBLE FROM A FORWARD APPROACH. THE VERTICAL PROJECTION LIMIT OF THE PEDESTRIAN PUSHBUTTON MAY BE OFFSET FROM THE PEDESTRIAN PATH A MAXIMUM OF 0'-10" FOR ALL OTHER APPLICATIONS.

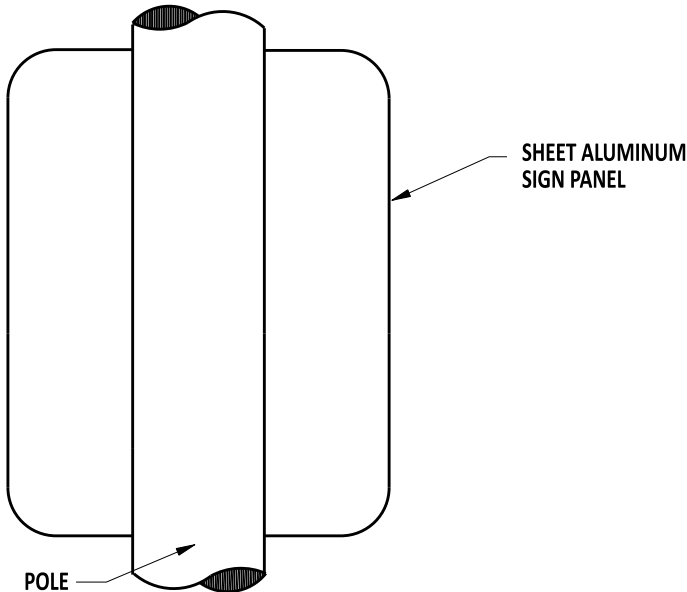
NOTES:

- 1). PUSHBUTTON ASSEMBLY SHALL BE SECURED TO WOOD POLES WITH 21#2" LAG BOLTS.

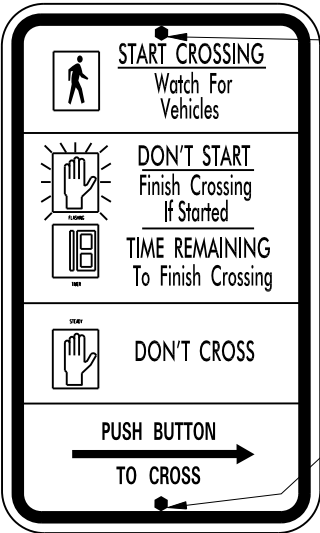
	 ENGINEERING SUPPORT RECOMMENDED 12/13/2022 DATE	PEDESTRIAN PUSHBUTTON LOCATION - PUSHBUTTON ASSEMBLY LOCATION ON POLE		REVIEWED	 DEPUTY DIRECTOR - DESIGN 12/16/2022 DATE
		STANDARD NO.	T-18 (2022)	SHT. 1 OF 3	APPROVED CHIEF ENGINEER 12/21/2022 DATE



SIGN ATTACHMENT DETAIL
VERTICAL POLE INSTALLATION ONLY
FOR PUSHBUTTON SIGN
(PLAN VIEW)

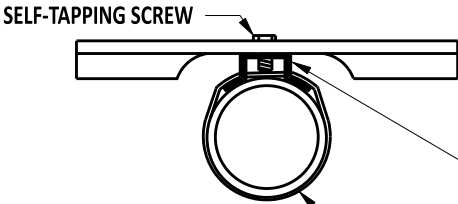


BACK OF SIGN

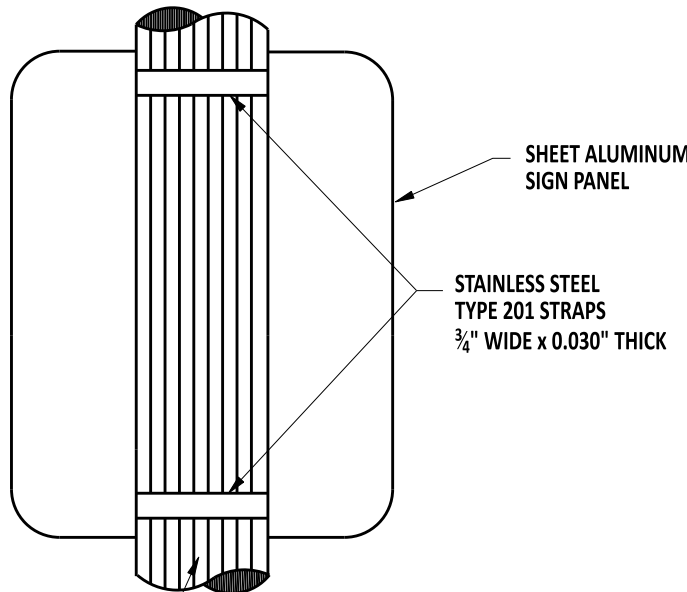


FRONT OF SIGN

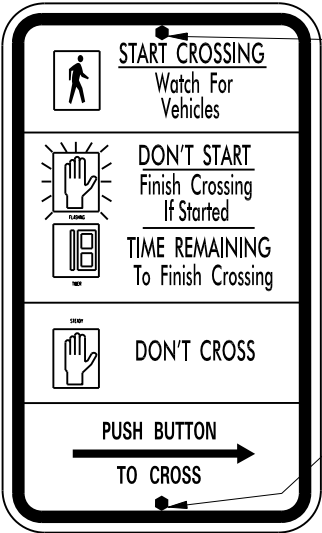
SELF-TAPPING SCREWS AND WASHERS SHALL NOT COVER SIGN TEXT.



SIGN ATTACHMENT DETAIL
VERTICAL POLE INSTALLATION ONLY
FOR PUSHBUTTON SIGN
(PLAN VIEW)

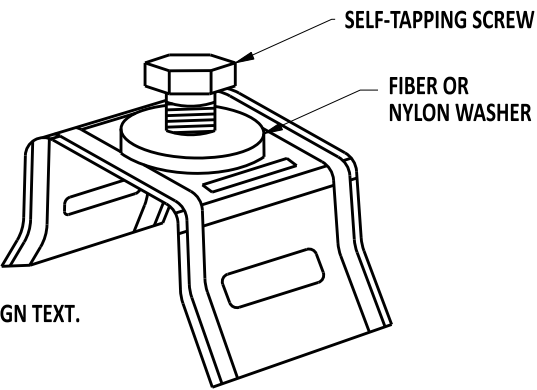


BACK OF SIGN



FRONT OF SIGN

SELF-TAPPING SCREWS AND WASHERS SHALL NOT COVER SIGN TEXT.



DETAIL A
STAINLESS STEEL SADDLE BRACKET



Andrew Shott
ENGINEERING SUPPORT
RECOMMENDED
12/13/2022
DATE

PEDESTRIAN PUSHBUTTON LOCATION - SIGN ATTACHMENT

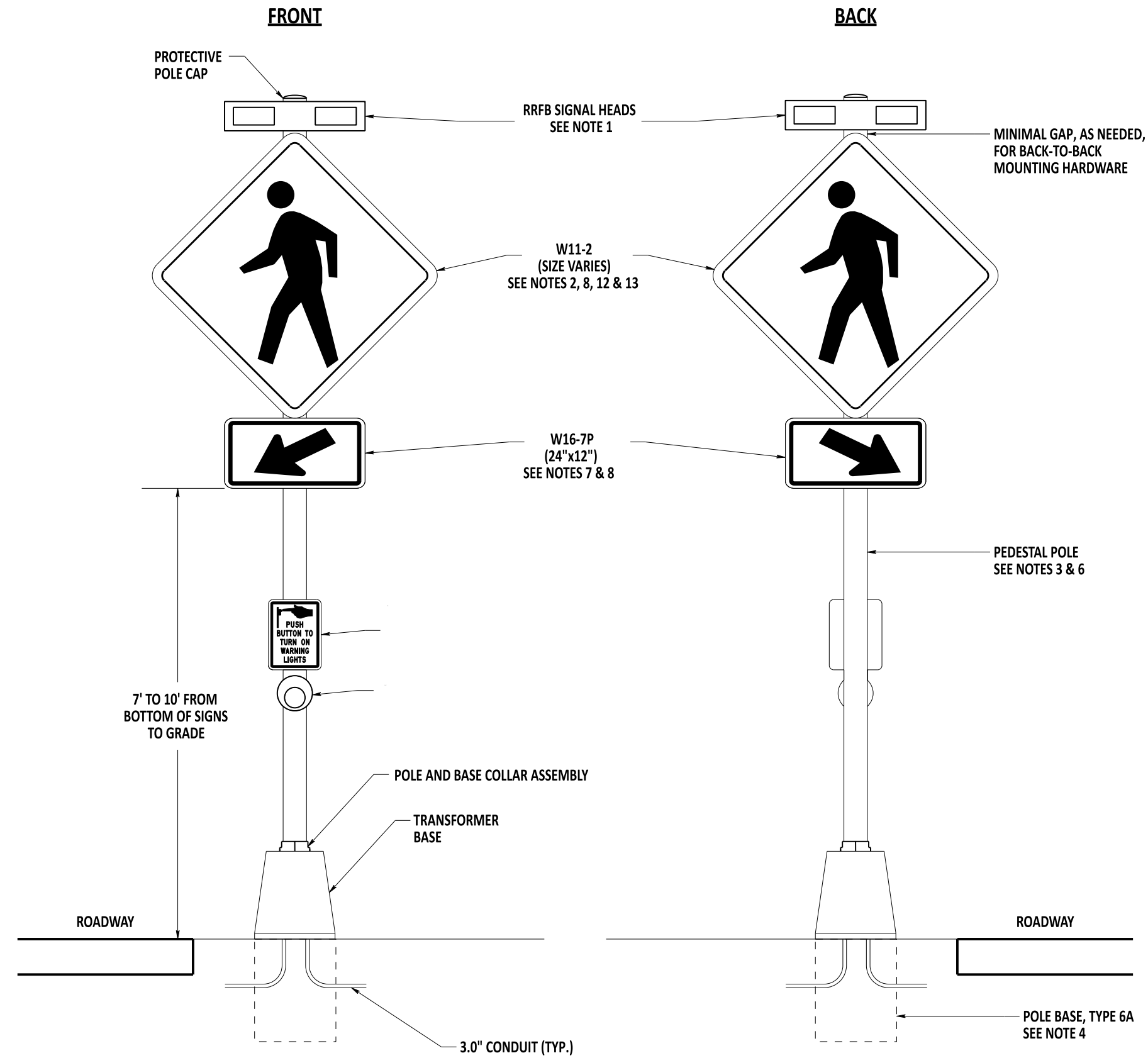
STANDARD NO. T-18 (2022) SHT. 2 OF 3

REVIEWED

Mike Lee
DEPUTY DIRECTOR - DESIGN
12/16/2022
DATE

APPROVED

Shrey
CHIEF ENGINEER
12/21/2022
DATE



NOTES:

- 1). INSTALL RRFB SIGNAL HEADS IN ACCORDANCE WITH SECTION 834 OF THE STANDARD SPECIFICATIONS.
- 2). INSTALL SIGNS IN ACCORDANCE WITH SECTION 822 OF THE STANDARD SPECIFICATIONS.
- 3). INSTALL PEDESTAL POLE IN ACCORDANCE WITH SECTION 836 OF THE STANDARD SPECIFICATIONS.
- 4). REFER TO T-5, SHEET 3 FOR INFORMATION ON POLE BASE TYPE 6A.
- 5). REFER TO T-18, SHEET 1 FOR INFORMATION ON PEDESTRIAN PUSHBUTTON LOCATION.
- 6). THE PEDESTAL POLE SHALL BE CONTINUOUS SPUN ALUMINUM, SCHEDULE 80. SPLICING POLE EXTENSIONS SHALL BE PROHIBITED.
- 7). W16-7P PLAQUES ON ROADWAY EDGES SHALL POINT TOWARDS THE ROAD. W16-7P PLAQUES IN THE MEDIAN SHALL POINT TO THE RIGHT.
- 8). SIGNS, PLAQUES, AND RRFB BEACONS SHALL BE INSTALLED ON RRFB SIGNAL POLES AS FOLLOWS:

TRAFFIC	NUMBER OF MEDIAN POLES	SIGNS, PLAQUES, & BEACONS	PEDESTRIAN SIGN & PUSHBUTTON
2-WAY	0	DOUBLE-SIDED	ONE PER POLE
	1		
1-WAY	ANY	SINGLE-SIDED*	

* SINGLE-SIDED ASSEMBLIES SHALL FACE APPROACHING TRAFFIC.

DESIGNER NOTES:

- 9). REFER TO FHWA INTERIM APPROVAL 21 FOR ADDITIONAL DESIGN INFORMATION.
- 10). REFER TO STANDARD DETAIL T-17, SHEETS 6 AND 7 FOR INFORMATION ON THE DESIGN OF RRFB POWER METERS AND CABINETS.
- 11). RRFB POLE(S) SHOULD BE INSTALLED IN THE MEDIAN TO ALLOW USERS TO REACTIVATE THE RRFB BEACONS.
- 12). SIGNS SHALL BE 30"x30" ON SINGLE-LANE APPROACHES AND 36"x36" ON MULTI-LANE APPROACHES. 48"x48" SIGNS MAY ONLY BE INSTALLED WITH APPROVAL OF THE CHIEF OF TRAFFIC ENGINEERING.
- 13). RRFB'S SHALL ONLY BE INSTALLED WITH S1-1, W11-2, AND W11-15 SIGNS. SUPPLEMENTARY PLAQUES, SUCH AS W11-15P, MAY BE USED.



Andrew Shott
ENGINEERING SUPPORT
RECOMMENDED
12/13/2022
DATE

PEDESTRIAN PUSHBUTTON LOCATION -
AC-POWERED RRFB SIGNAL POLE INSTALLATION
STANDARD NO. T-18 (2022) SHT. 3 OF 3

REVIEWED

Mike Lee
DEPUTY DIRECTOR - DESIGN

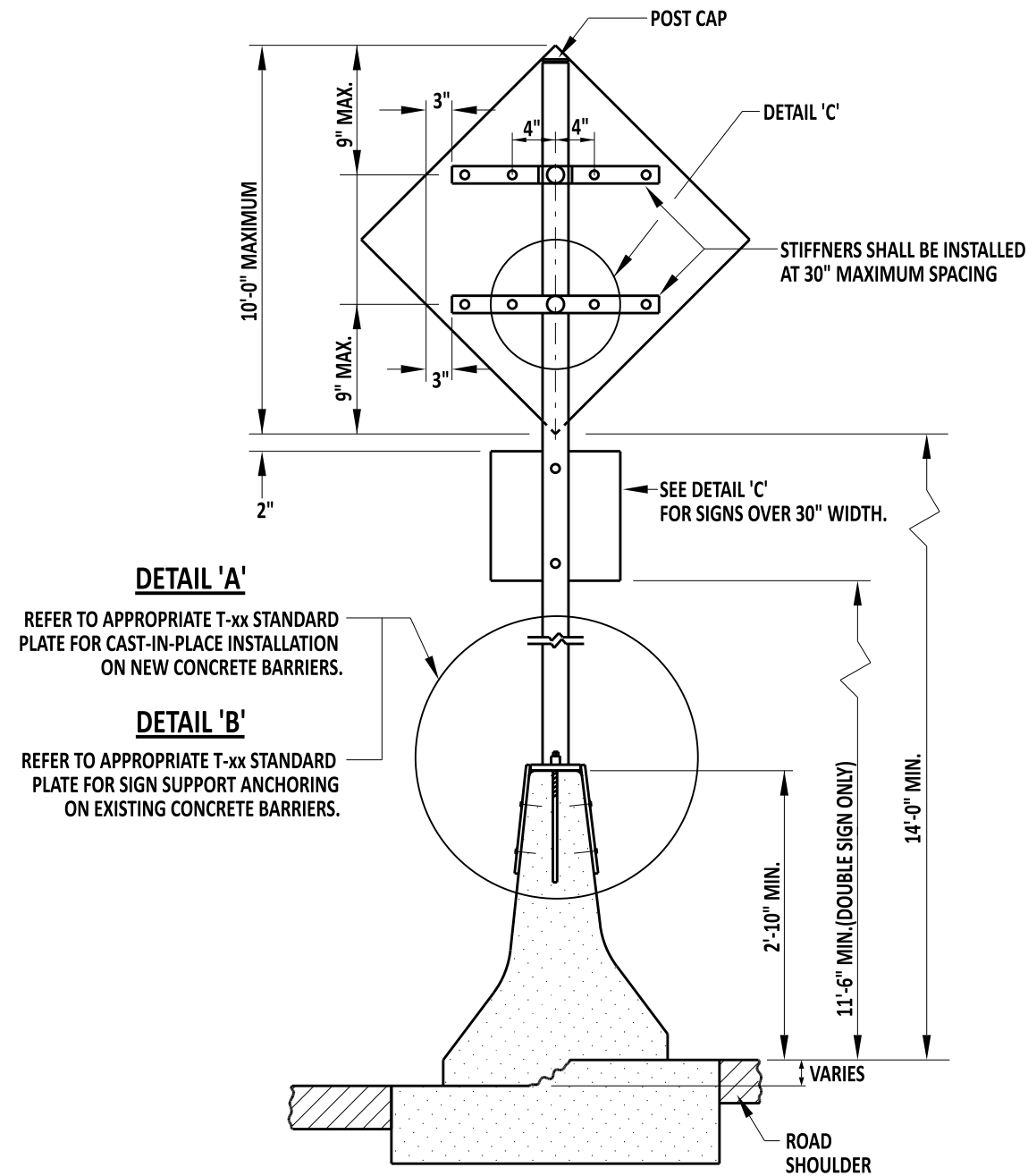
12/16/2022
DATE

APPROVED

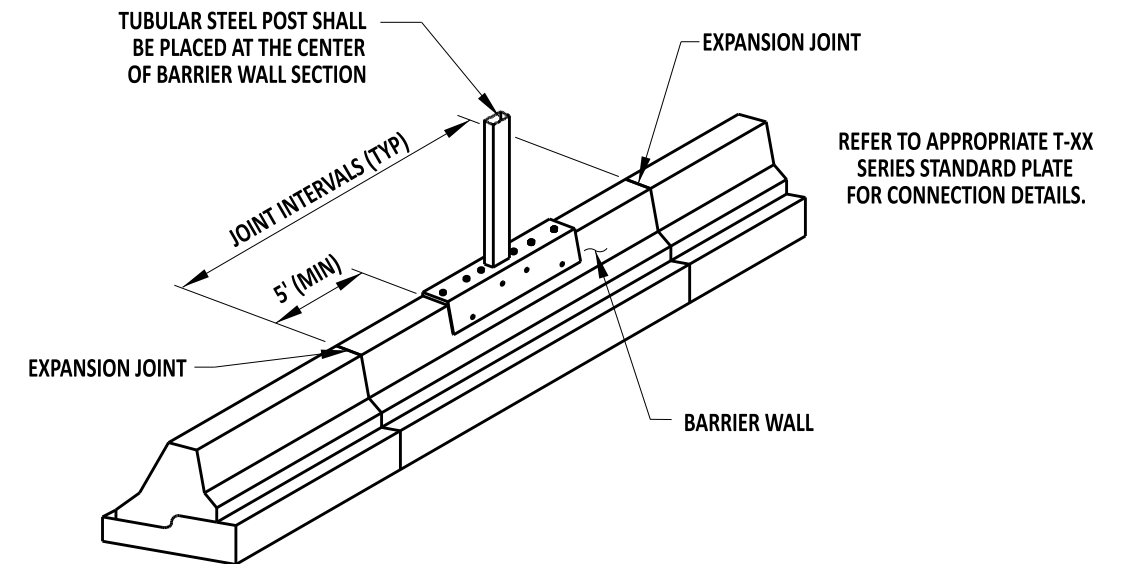
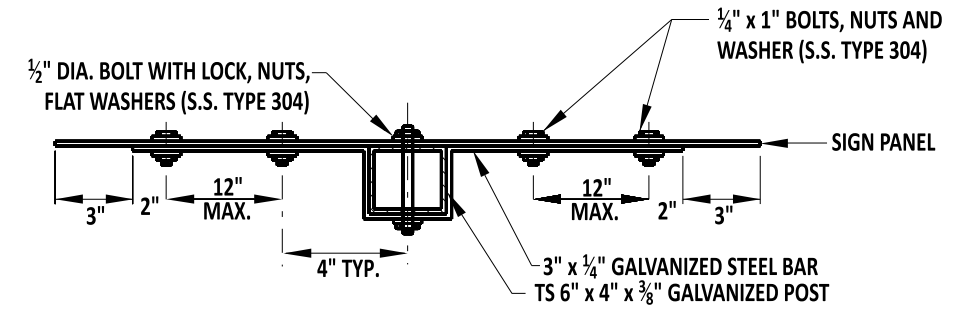
Shrey
CHIEF ENGINEER

12/21/2022
DATE

CONCRETE BARRIER MOUNTED SIGN
MAXIMUM SIGN AREA - 40 SQ. FT.



DETAIL 'C' - TOP VIEW
TUBULAR STEEL POST



NOTES:

- 1). THE BARRIER MOUNT SHALL BE INSTALLED 5' (MIN.) OFF OF ALL EXPANSION JOINTS
- 2). ANCHOR BOLTS SHALL BE ASTM F 1554, GR 55 S1 GALVANIZED. NUTS SHALL BE ASTM A194 GRADE OR 2H.
- 3). TUBULAR STEEL POST TS 6" X 4" X 3/8" SHALL BE A501 UNLESS OTHERWISE NOTED.
- 4). REFER TO APPROPRIATE T-xx STANDARD PLATES FOR ALTERNATIVE SIGN ATTACHMENT TO STEEL TUBE POSTS OR W6X12 POSTS.
- 5). ALL STRUCTURAL STEEL AND HARDWARE SHALL BE GALVANIZED IN CONFORMANCE WITH ASTM A123 AND A153, RESPECTIVELY.
- 6). ALL PLATES AND W6X12 POST SHALL CONFORM TO ASTM A706, GRADE 36.
- 7). CONCRETE BARRIER MOUNTED SIGN MAXIMUM SIGN AREA OF 40 SQ. FT.



Andrew Shott
 ENGINEERING SUPPORT
 RECOMMENDED
 12/13/2022
 DATE

BARRIER MOUNTED SIGN

STANDARD NO.

T-19 (2022)

SHT. 1

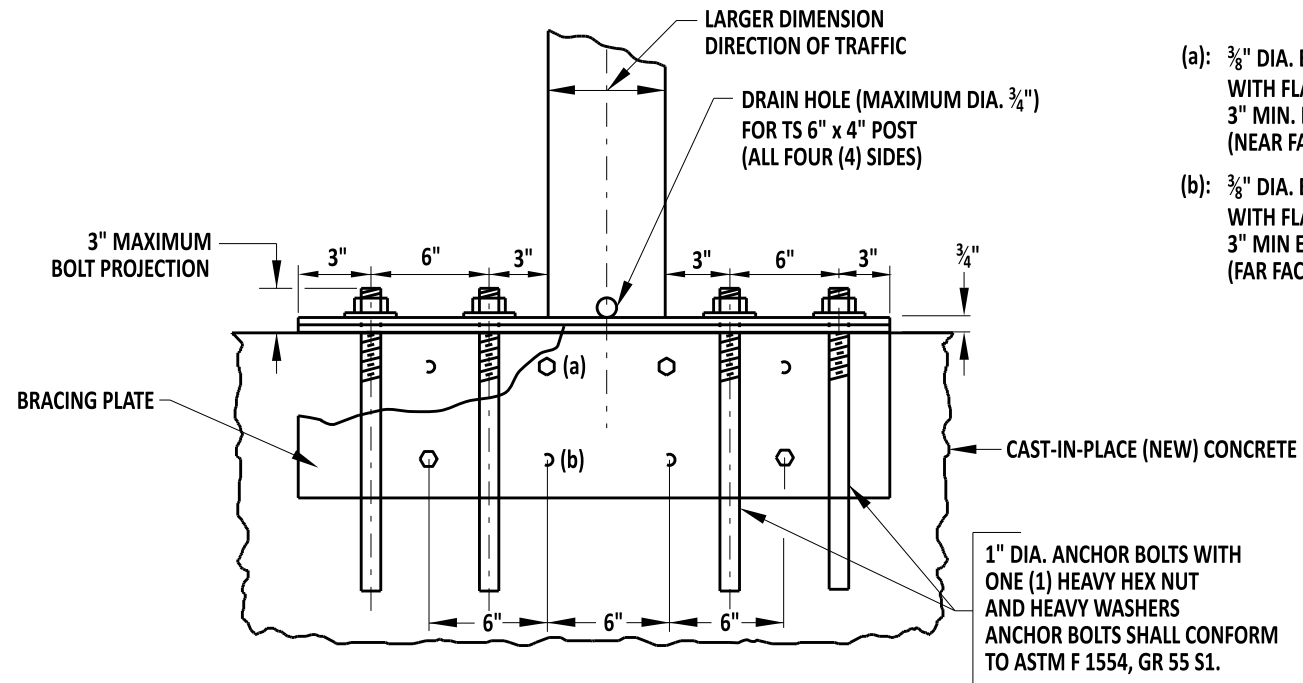
OF 2

REVIEWED

Mike Lee
 DEPUTY DIRECTOR - DESIGN
 12/16/2022
 DATE

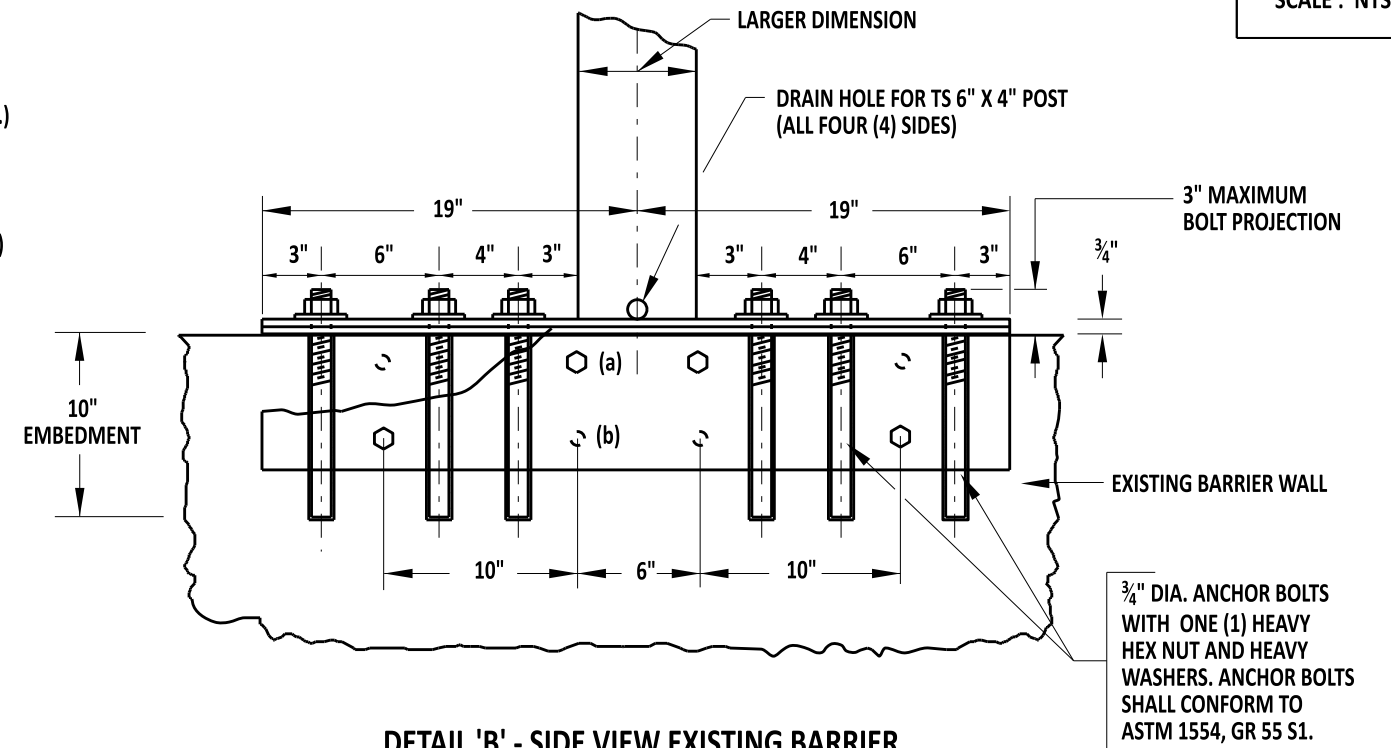
APPROVED

Shrey
 CHIEF ENGINEER
 12/21/2022
 DATE

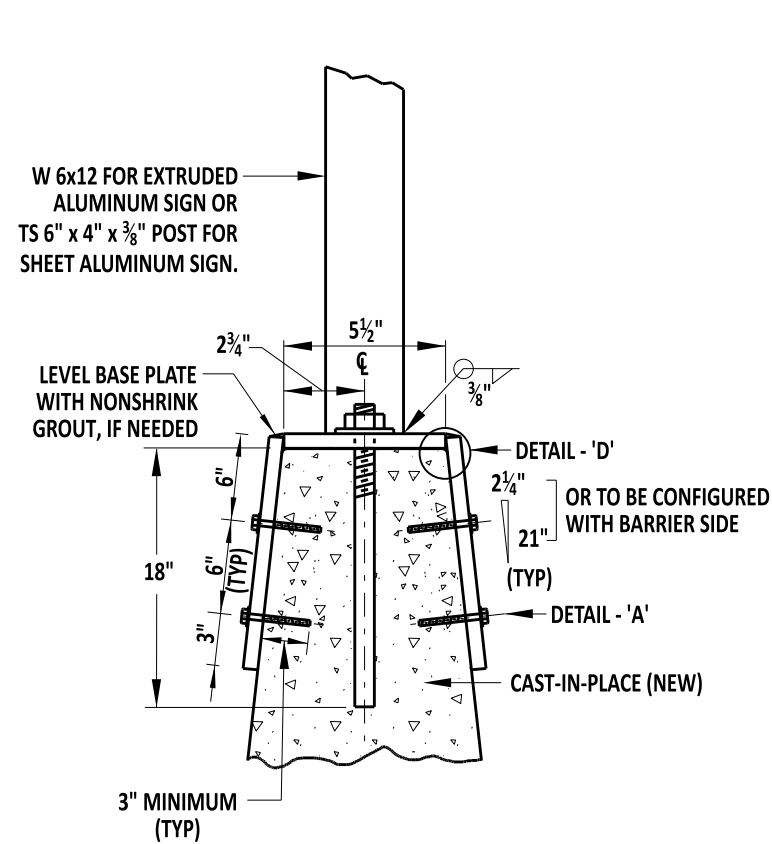


DETAIL 'A' - SIDE VIEW NEW BARRIER

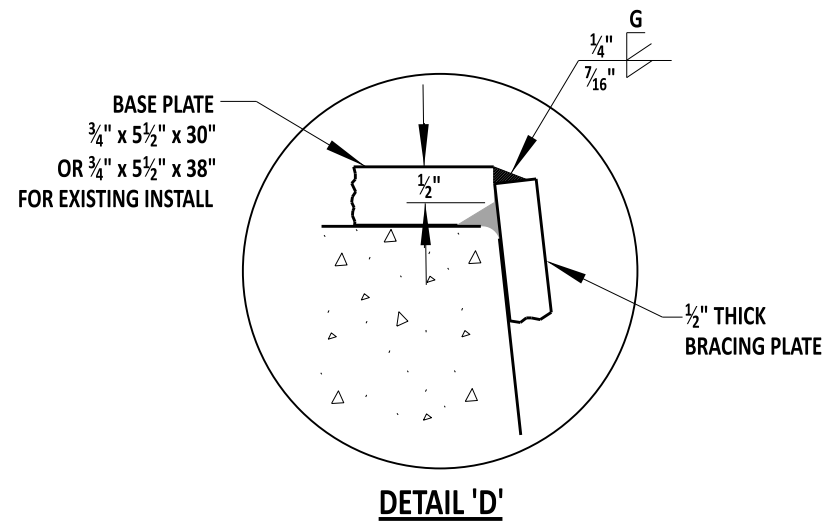
- (a): $\frac{3}{8}$ " DIA. EXPANSION BOLTS WITH FLAT WASHERS 3" MIN. EMBEDMENT (TYP.) (NEAR FACE)
- (b): $\frac{3}{8}$ " DIA. EXPANSION BOLTS WITH FLAT WASHERS 3" MIN EMBEDMENT (TYP.) (FAR FACE)



DETAIL 'B' - SIDE VIEW EXISTING BARRIER



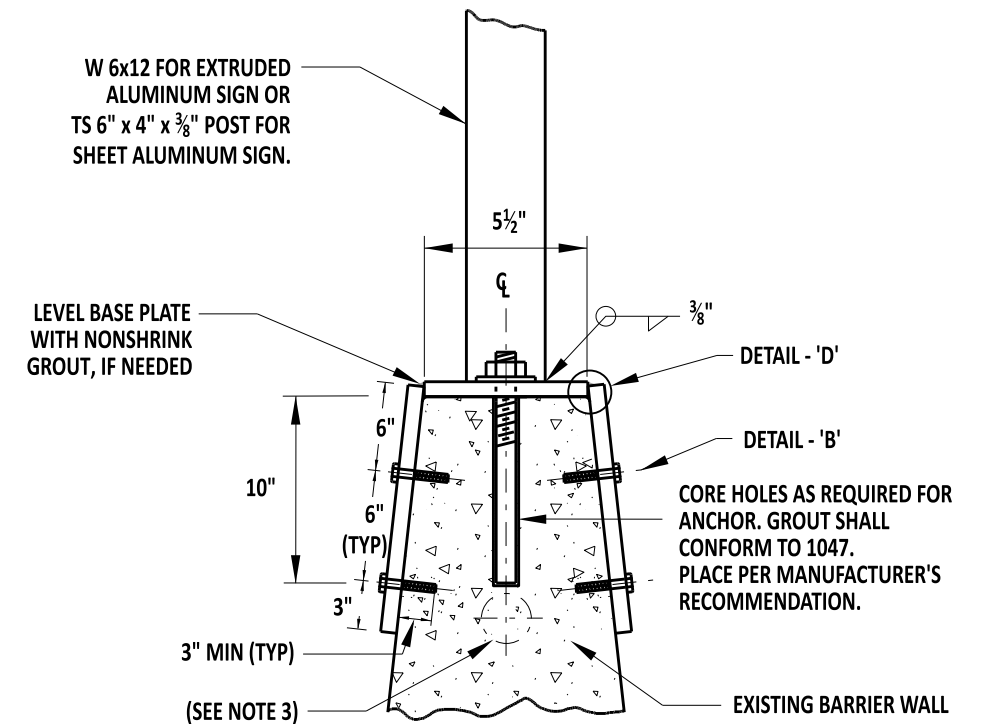
DETAIL 'A' NEW BARRIER



DETAIL 'D'

NOTES:

1. THE CONTRACTOR SHALL VERIFY ANY EXISTING CONDUIT BEFORE DRILLING HOLES. IF THE CONDUIT IS WITHIN 10" FROM THE TOP OF THE BARRIER, THE ENGINEER SHALL BE CONTACTED FOR ALTERNATE DESIGN.



DETAIL 'A' EXISTING BARRIER



Andrew Shott
ENGINEERING SUPPORT
RECOMMENDED
12/13/2022
DATE

BARRIER MOUNTED SIGN

STANDARD NO. T-19 (2022) SHT. 2 OF 2

REVIEWED

12/16/2022
DEPUTY DIRECTOR - DESIGN

12/16/2022
DATE

APPROVED

12/21/2022
CHIEF ENGINEER

12/21/2022
DATE

TWO POST SELECTION CHART (A36 STEEL)

80 MPH
10 YEAR RECURRENCE

W FEET	L-MAX FEET	HEIGHT 'H' IN FEET															
		4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
8	6	W6X9	W6X9	W6X9	W6X9	W6X9	W6X9	W6X9	W6X12	W8X18	W8X18	W10X22	W10X22	W10X22	W10X22	W10X22	
	8	W6X9	W6X9	W6X9	W6X12	W6X12	W6X12	W6X15	W6X15	W8X18	W8X18	W10X22	W10X22	W10X22	W10X22	W10X22	
	10	W6X9	W6X9	W6X12	W6X12	W6X12	W6X15	W6X15	W6X15	W8X18	W8X18	W10X22	W10X22	W10X22	W10X22	W10X22	
	12	W6X9	W6X12	W6X12	W6X15	W6X15	W6X15	W6X15	W8X18	W8X18	W8X21	W8X21	W10X22	W10X26	W10X26	N/A	
	14	W6X12	W6X15	W6X15	W6X15	W6X15	W8X18	W8X18	W8X21	W10X22	W10X22	W10X26	W10X26	N/A	N/A	N/A	
	16	W6X15	W6X15	W6X15	W6X15	W8X18	W8X21	W8X21	W8X21	W10X26	W10X26	W10X26	N/A	N/A	N/A	N/A	
	18	W6X15	W6X15	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
	20	W6X15	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10	6	W6X9	W6X9	W6X9	W6X9	W6X9	W6X12	W6X12	W6X15	W8X18	W8X18	W10X22	W10X22	W10X22	W10X22	W10X22	
	8	W6X9	W6X9	W6X9	W6X12	W6X12	W6X12	W6X15	W6X15	W8X18	W8X18	W10X22	W10X22	W10X22	W10X22	W12X26	
	10	W6X9	W6X12	W6X12	W6X15	W6X15	W6X15	W6X15	W8X18	W8X21	W10X22	W10X22	W10X26	W12X26	W12X26	W12X26	
	12	W6X12	W6X12	W6X15	W6X15	W6X15	W6X15	W8X18	W8X21	W8X21	W8X21	W10X26	W10X26	W12X26	W14X30	W18X35	
	14	W6X12	W6X15	W6X15	W6X15	W8X18	W8X21	W8X21	W8X21	W10X26	W10X26	W10X26	W12X26	W18X35	W18X35	W18X35	
	16	W6X15	W8X18	W8X18	W8X21	W8X21	W10X26	W10X26	W10X26	W12X26	W14X30	W18X35	N/A	N/A	N/A	N/A	
	18	W6X15	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
	20	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
12	6	W6X9	W6X9	W6X9	W6X12	W6X12	W6X15	W6X15	W8X18	W8X18	W10X22	W10X22	W10X22	W10X22	W12X26	W14X30	
	8	W6X9	W6X9	W6X12	W6X12	W6X15	W6X15	W6X15	W8X18	W8X18	W10X22	W10X22	W10X22	W12X26	W14X30	W16X31	
	10	W6X12	W6X12	W6X15	W6X15	W6X15	W6X15	W8X18	W8X18	W8X21	W10X22	W10X22	W10X26	W12X26	W14X30	W16X31	
	12	W6X12	W6X15	W6X15	W8X18	W8X18	W8X21	W8X21	W10X22	W10X26	W12X26	W12X26	W14X30	W18X35	W18X35	W18X35	
	14	W6X15	W8X18	W8X18	W8X21	W8X21	W10X22	W10X26	W10X26	W12X26	W14X30	W18X35	W18X35	N/A	N/A	N/A	
	16	W6X15	W8X18	W8X21	W8X21	W10X22	W10X26	W10X26	W10X26	W14X30	W14X30	N/A	N/A	N/A	N/A	N/A	
	18	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
	20	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

W FEET	L-MAX FEET	HEIGHT 'H' IN FEET															
		4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
14	6	W6X9	W6X9	W6X9	W6X12	W6X12	W6X15	W6X16	W8X18	W10X22	W10X22	W10X22	W10X22	W12X26	W12X26	W14X30	
	8	W6X9	W6X12	W6X12	W6X15	W6X15	W6X15	W8X18	W8X18	W10X22	W10X22	W10X22	W10X22	W12X26	W14X30	W16X31	
	10	W6X12	W6X12	W6X15	W6X15	W6X15	W8X18	W8X18	W8X21	W10X22	W10X22	W10X26	W12X26	W14X30	W16X31	W18X35	
	12	W6X15	W8X18	W8X18	W8X21	W8X21	W10X26	W10X26	W10X26	W12X26	W12X26	W14X30	W18X35	W18X35	W18X40	N/A	
	14	W6X15	W8X18	W8X21	W8X21	W10X26	W10X26	W10X26	W12X26	W14X30	W18X35	W18X40	N/A	N/A	N/A	N/A	
	16	W6X15	W8X18	W8X21	W10X22	W10X26	W10X26	W10X26	W14X30	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
	18	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
	20	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
16	6	W6X9	W6X9	W6X12	W6X12	W6X15	W6X16	W8X18	W10X22	W10X22	W10X22	W10X22	W12X26	W12X26	W14X30	W16X31	
	8	W6X9	W6X12	W6X12	W6X15	W6X15	W8X18	W8X18	W10X22	W10X22	W10X22	W10X22	W12X26	W12X26	W16X31	W18X35	
	10	W6X12	W6X15	W6X15	W6X15	W8X18	W8X18	W8X21	W10X22	W10X22	W10X26	W12X26	W14X30	W16X31	W18X35	N/A	
	12	W6X15	W8X18	W8X18	W8X21	W8X21	W10X26	W10X26	W12X26	W12X26	W14X30	W18X35	W18X35	N/A	N/A	N/A	
	14	W6X15	W8X18	W8X21	W8X21	W10X26	W10X26	W12X26	W12X26	W14X30	W18X35	W18X40	N/A	N/A	N/A	N/A	
	16	W8X18	W8X21	W10X26	W10X26	W14X30	W14X30	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
	18	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
	20	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
18	6	W6X9	W6X9	W6X12	W6X15	W6X15	W8X18	W10X22	W10X22	W10X22	W10X22	W12X26	W12X26	W14X30	W16X31	W18X35	
	8	W6X12	W6X12	W6X15	W6X15	W8X18	W8X18	W10X22	W10X22	W10X22	W12X26	W12X26	W14X30	W18X35	N/A	N/A	
	10	W6X12	W6X15	W6X15	W8X18	W8X18	W8X21	W10X22	W10X22	W10X26	W12X26	W14X30	W18X35	W18X35	N/A	N/A	
	12	W6X15	W6X15	W8X18	W8X21	W8X21	W10X26	W10X26	W12X26	W12X26	W14X30	W18X35	W18X35	N/A	N/A	N/A	
	14	W6X15	W8X18	W8X21	W8X21	W10X26	W10X26	W12X26	W12X26	W14X30	W18X35	W18X40	N/A	N/A	N/A	N/A	
	16	W8X18	W8X21	W10X26	W10X26	W14X30	W14X30	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
	18	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
	20	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
20	6	W6X9	W6X12	W6X12	W6X15	W6X16	W8X18	W10X22	W10X22	W10X22	W12X26	W12X26	W14X30	W16X31	N/A	N/A	
	8	W6X12	W6X12	W6X15	W6X15	W8X18	W8X18	W10X22	W10X22	W10X22	W12X26	W12X26	W14X30	W16X31	N/A	N/A	
	10	W6X15	W6X15	W8X18	W8X18	W8X21	W10X22	W10X22	W10X26	W12X26	W12X26	W14X30	W18X35	N/A	N/A	N/A	
	12	W6X15	W6X15	W8X18	W8X21	W8X21	W10X26	W10X26	W12X26	W12X26	W14X30	W18X35	W18X35	N/A	N/A	N/A	
	14	W6X15	W8X21	W8X21	W10X26	W10X26	W14X30	W18X35	W18X40	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
	16	W8X21	W8X21	W10X26	W10X26	W14X30	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
	18	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
	20	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

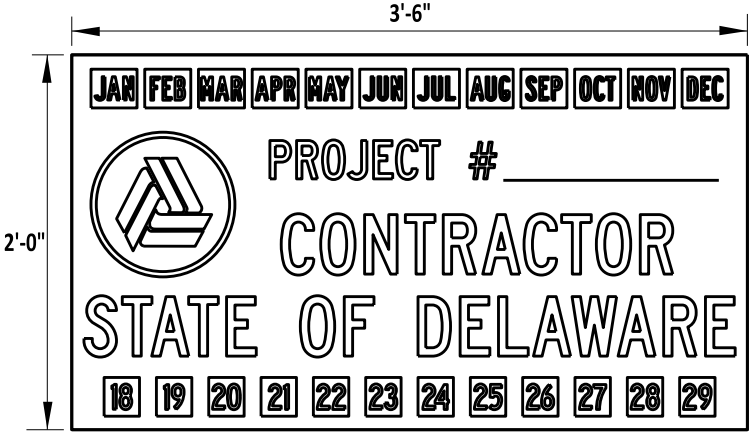
W FEET	L-MAX FEET	HEIGHT 'H' IN FEET																
		4	5	6	7	8	9	10	11	12	13	14	15	16	17	18		
22	6	W6X9	W6X12	W6X15	W6X15	W8X18	W8X18	W10X22	W10X22	W10X22	W10X22	W12X26	W14X30	W16X31	N/A	N/A	N/A	
	8	W6X12	W6X15	W6X15	W8X18	W8X18	W10X22	W10X22	W10X22	W10X26	W12X26	W14X30	W16X31	N/A	N/A	N/A	N/A	
	10	W6X15	W6X15	W8X18	W8X18	W8X21	W10X22	W10X26	W12X26	W14X30	W18X35	N/A	N/A	N/A	N/A	N/A	N/A	
	12	W6X15	W8X18	W8X21	W8X21	W10X26	W12X26	W14X30	W18X35	W18X35	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
	14	W8X18	W8X21	W10X26	W10X26	W12X26	W14X30	W18X35	W18X40	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
	16	W8X21	W10X26	W10X26	W14X30	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	18	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
	20	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
24	6	W6X9	W6X12	W6X15	W6X15	W8X18	W10X22	W10X22	W10X22	W12X26	W14X30	N/A	N/A	N/A	N/A	N/A	N/A	
	8	W6X12	W6X15	W6X15	W8X18	W8X18	W10X22	W10X22	W10X26	W12X26	W14X30	N/A	N/A	N/A	N/A	N/A	N/A	
	10	W6X15	W6X15	W8X18	W8X21	W8X21	W10X26	W10X26	W12X26	W14X30	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
	12	W6X15	W8X18	W8X21	W8X21	W10X26	W12X26	W14X30	W18X35	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
	14	W8X18	W8X21	W10X26	W10X26	W14X30	W18X35	W18X40	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
	16	W8X21	W10X26	W10X26	W14X30	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
	18	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
	20	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
26	6	W6X12	W6X12	W6X15	W8X18	W8X18	W10X22	W10X22	W10X22	W12X26	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
	8	W6X12	W6X15	W8X18	W8X18	W8X21	W10X22	W10X22	W10X26	W12X26	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
	10	W6X15	W6X15	W8X18	W8X21	W10X22	W10X26	W12X26	W14X30	W18X35	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
	12	W8X21	W8X21	W8X21	W10X26	W10X26	W14X30	W18X35	W18X40	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
	14	W8X21	W10X22	W10X26	W12X26	W14X30	W18X40	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
	16	W10X22	W10X26	W14X30	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
	18	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
	20	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
28	6	W6X12	W6X15	W6X15	W8X18	W10X22	W10X22	W10X22	W12X26	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
	8	W6X15	W6X15	W8X18	W8X18	W10X22	W10X22	W10X26	W12X26	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
	10	W6X15	W8X18	W8X21	W8X21	W10X26	W10X26	W12X26	W14X30	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
	12	W8X18	W8X21	W8X21	W10X26	W12X26	W14X30	W18X35	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
	14	W8X21	W10X26	W10X26	W14X30	W18X35	W18X40	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
	16	W10X26	W10X26	W14X30	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
	18	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
	20	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

SCALE : NTS

[illegible][illegible]

12/13/2022

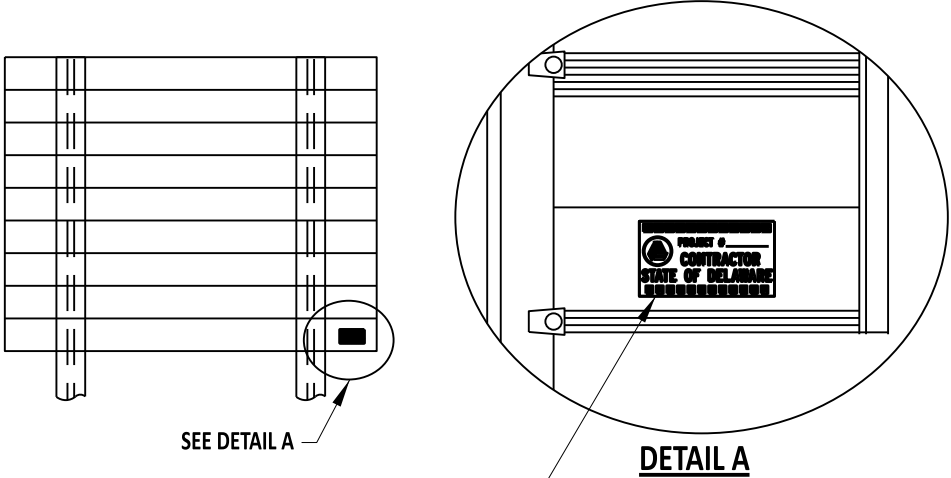
INSTALLATION DATE DECAL



NOTE:

1. FOR DECAL DESIGN DETAIL SEE DELAWARE STANDARD HIGHWAY SIGNS 2018 EDITION PAGE 140.

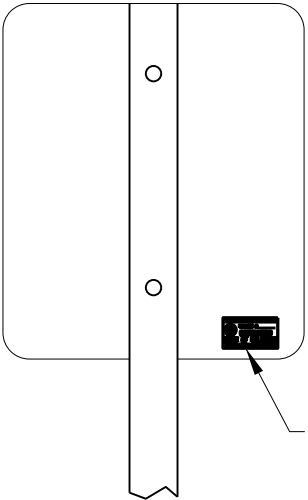
EXTRUDED SIGN
REAR VIEW



INSTALL DECAL TO FIRST EXTRUDED
SIGN PANEL JUST BELOW CENTER STIFFENER
RIB APPROXIMATELY 2 TO 3 INCHES FROM
RIGHT EDGE OF SIGN PANEL

DATE STICKER DECAL INSTALLATION
ON FLAT SHEET SIGNS

INSTALL DECAL ON BOTTOM
RIGHT CORNER OF SIGN AS
SHOWN BELOW



FLAT SHEET SIGN
REAR VIEW

NOTES:

1. ALL DECALS SHALL BE MANUFACTURED USING THE OFFSET SILK SCREEN METHOD. NO INKJET, PHOTO PRINT, OR LARGE FORMAT TYPE PRINTING WILL BE ACCEPTED OF ANY KIND.
2. ALL DECALS SHALL BE INSTALLED ON A SIGN AS SHOWN IN THE ABOVE DETAILS.
3. TO DOWNLOAD AN ELECTRONIC COPY OF THE DECAL FOR MANUFACTURING PURPOSES GO TO https://deldot.gov/Publications/manuals/de_mutcd/pdfs/DELAWARE-SIGN-BOOK-2018-EDITION.pdf A DOWNLOAD ICON IS LOCATED AT THE TOP RIGHT CORNER OF SHEET 140 ABOVE THE SHOWN DECAL. CLICK ON LINK AND DOWNLOAD THE DECAL ZIP FILE WHICH GIVES YOU ACCESS TO FOUR DIFFERENT FORMAT TYPES FOR USE.



Andrew Shott
ENGINEERING SUPPORT
RECOMMENDED
12/13/2022
DATE

SIGN INSTALLATION DATE DECAL

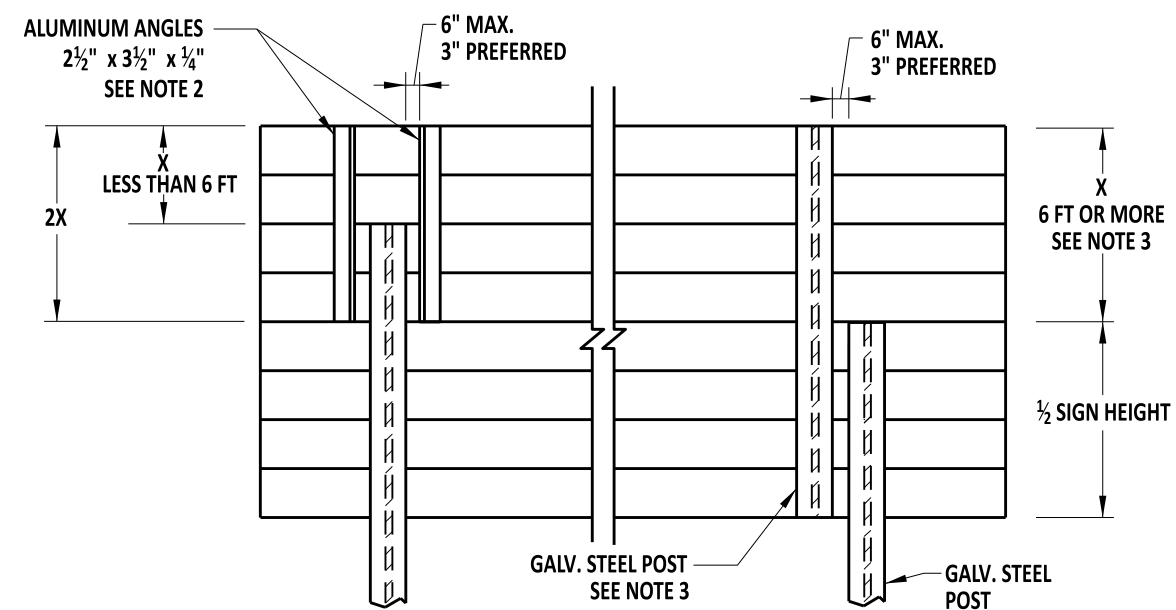
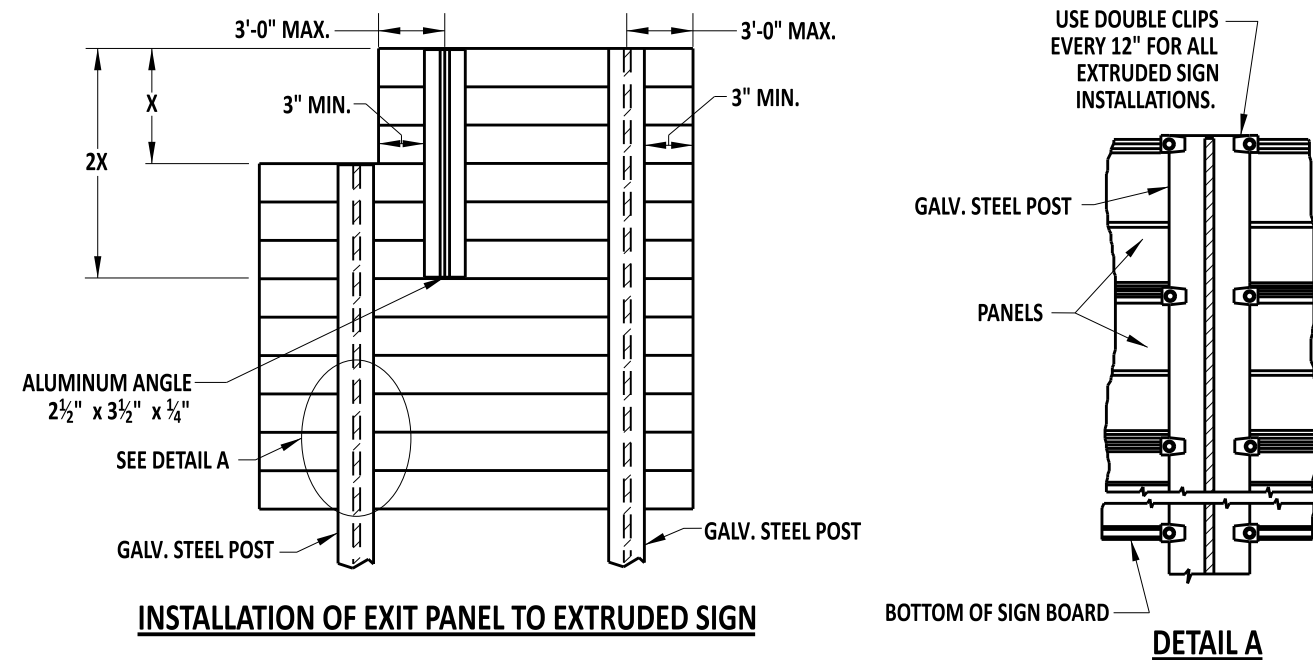
STANDARD NO. T-21 (2022) SHT. 1 OF 1

REVIEWED

Mike Lee
DEPUTY DIRECTOR - DESIGN
12/16/2022
DATE

APPROVED

Shrey
CHIEF ENGINEER
12/21/2022
DATE

**NOTES:**

1. VERTICAL SUPPORTS ARE TO BE CONTINUOUS FOR THE ENTIRE HEIGHT OF THE SIGN, INCLUDING EXIT PANEL WHERE APPLICABLE.
2. MODIFICATIONS WHERE "X" IS LESS THAN 6 FT, NON-CONTINUOUS SUPPORTS WITH DOUBLE ALUMINUM ANGLES WILL BE PERMITTED. TOTAL LENGTH OF DOUBLE ANGLES SHALL BE 2X AS NOTED ABOVE. USE 3 1/2" X 3 1/2" X 3/8" ALUMINUM ANGLE FOR SIGN WIDTH ABOVE 18 FT.
3. MODIFICATIONS WHERE "X" IS 6 FT. OR MORE, NON-CONTINUOUS SUPPORTS WITH A BEAM INSTALLED FOR THE FULL HEIGHT OF THE SIGN WILL BE PERMITTED. SPLICED SECTIONS SHALL HAVE A W6X9 OR EQUAL SECTION ATTACHED TO FULL HEIGHT OF SIGN. FOR BREAKAWAY SIGN SUPPORTS, THE EXISTING SIGN SUPPORT SHALL BE REMOVED ABOVE THE BREAKAWAY HINGE AND REPLACED WITH A SIGN SUPPORT OF THE SAME SIZE, ATTACHED TO FULL HEIGHT OF SIGN.
4. ALL SUPPORTS (INCLUDING ANGLES) SHALL BE POST CLIPPED AT 12" INTERVALS.
5. FOR BREAKAWAY ROADSIDE SIGN DISPLAYING MULTIPLE SIGN PANELS, INCLUDING EXIT PANELS, STEEL SIGN SUPPORTS ARE TO BE CHOSEN FROM THE SELECTION CHARTS BASED ON THE COMBINED PANEL HEIGHTS AND THE MAXIMUM WIDTH OF THE PROPOSED PANEL.



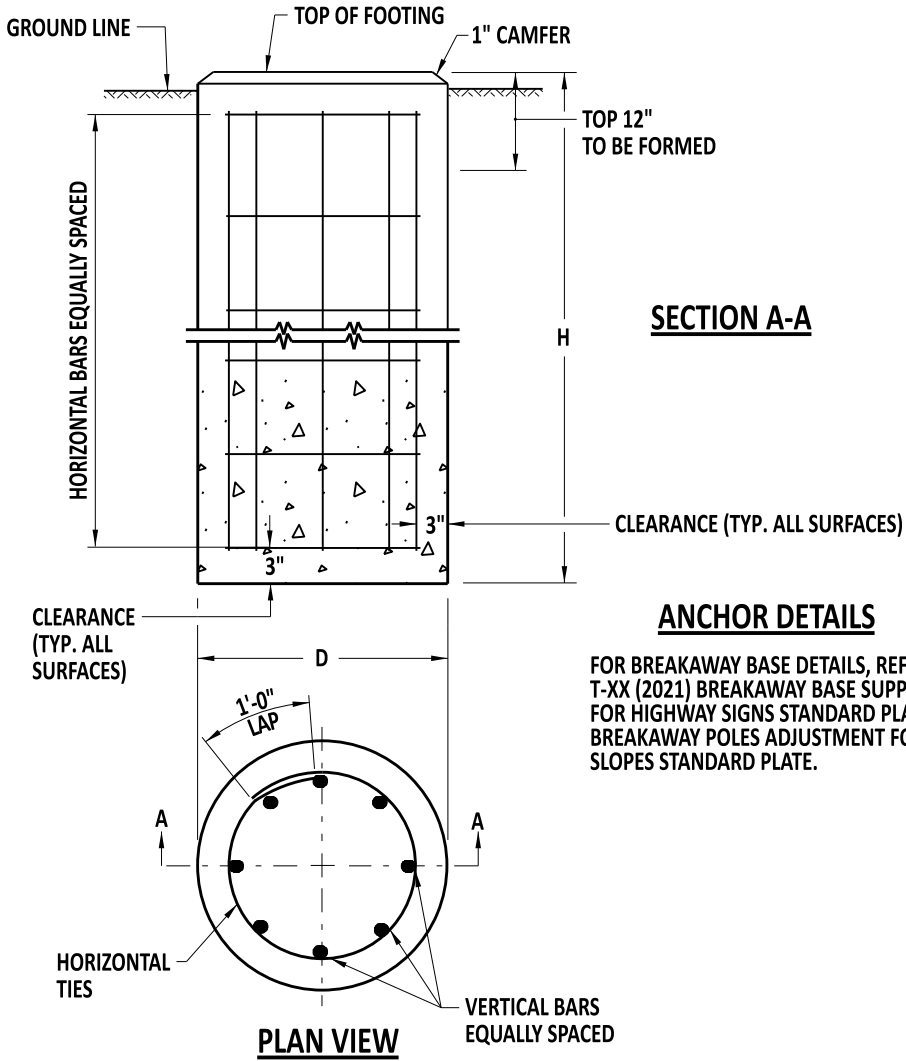
Andrew Shott
ENGINEERING SUPPORT
RECOMMENDED
12/13/2022
DATE

EXTRUDED ALUMINUM DETAILS VERTICAL SUPPORT ATTACHMENT
STANDARD NO. T-22 (2022) SHT. 1 OF 1

REVIEWED
APPROVED

12/16/2022
DATE
12/21/2022
DATE

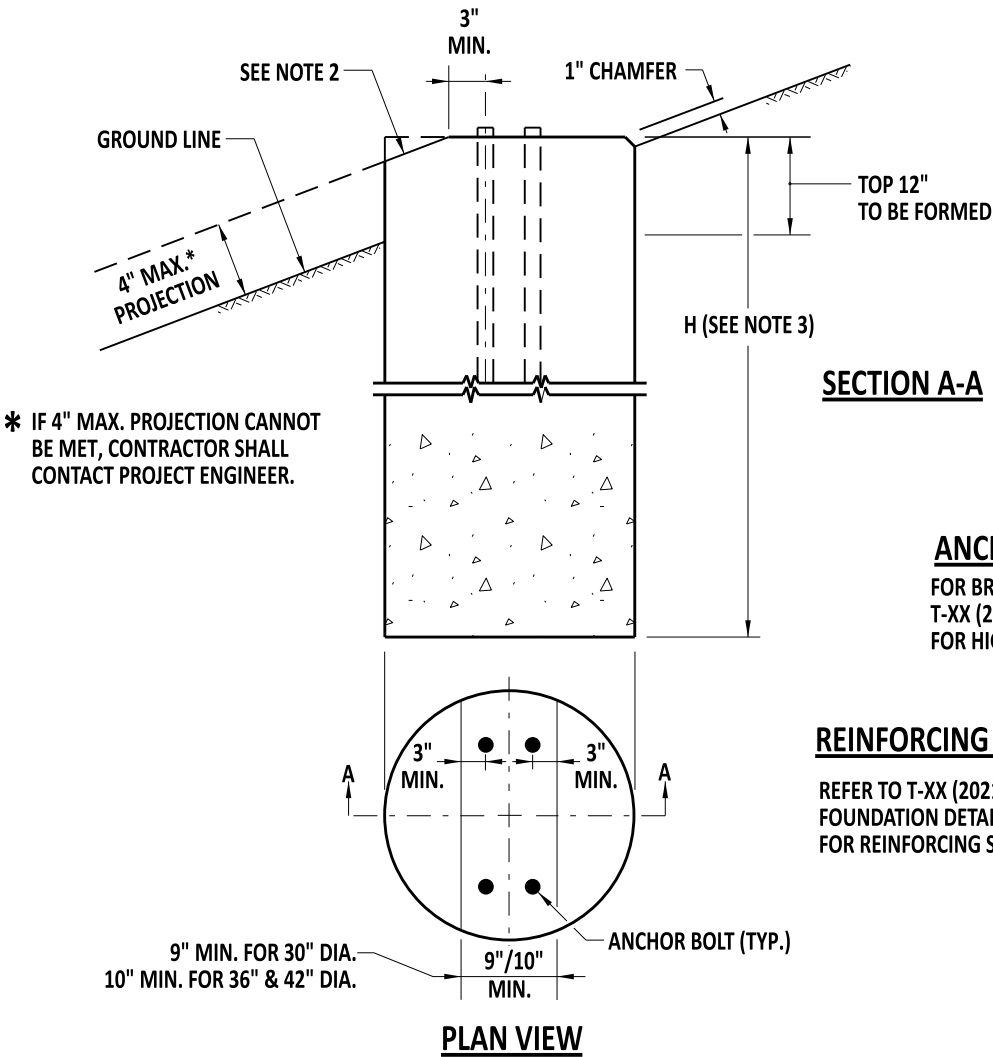
BREAKAWAY TYPE A SIGN POST FOUNDATIONS



FOUNDATION DATA TABLE

POST SIZE	D	H	VERTICAL REINFORCEMENT	HORIZONTAL REINFORCEMENT	CONCRETE REQ'D C.Y.
W6X9	30"	6'-0"	EIGHT (8)- NO.7	SEVEN (7)- NO.4	1.1
W6X12	30"	7'-6"	EIGHT (8)- NO.7	SEVEN (7)- NO.4	1.1
W6X15 OR W6X16	30"	7'-6"	EIGHT (8)- NO.7	SEVEN (7)- NO.4	1.2
W8X18	30"	7'-6"	EIGHT (8)- NO.9	EIGHT (8)- NO.4	1.4
W8X21	30"	8'-0"	EIGHT (8)- NO.9	NINE (9)- NO.4	1.5
W10X22	36"	8'-6"	EIGHT (8)- NO.10	NINE (9)- NO.4	2.3
W10X26	36"	9'-0"	EIGHT (8)- NO.10	TEN (10)- NO.4	2.4
W12X26	36"	10'-0"	EIGHT (8)- NO.10	ELEVEN (11)- NO.4	2.7
W14X30	36"	11'-0"	EIGHT (8)- NO.10	TWELVE (12)- NO.4	2.9
W16X31	36"	12'-0"	EIGHT (8)- NO.10	THIRTEEN (13)- NO.4	3.2
W18X35 OR W18X40	36"	13'-0"	EIGHT (8)- NO.10	FOURTEEN (14)- NO.4	3.5

BREAKAWAY TYPE B SIGN POST FOUNDATIONS



NOTES:

1. THIS FOUNDATION SHALL BE USED ONLY IN LOCATIONS MEETING SLOPE CRITERIA IN ACCORDANCE WITH THE STEEL BREAKAWAY SUPPORT FOUNDATION SELECTION TABLE ON SHEET.
2. SLOPED PORTIONS OF THE FOUNDATION SHALL MATCH THE FINISHED GROUND SLOPE.
3. REFER TO T-XX (2021) GALVANIZED STEEL BEAM SIGN POSTS FOUNDATION DETAILS - TYPE A FOR FOUNDATION DIMENSIONS AND REINFORCING STEEL DETAILS.



Andrew Shott
ENGINEERING SUPPORT
RECOMMENDED
12/13/2022
DATE

BREAKAWAY STEEL SIGN SUPPORT FOUNDATIONS

STANDARD NO. T-23 (2022)

SHT. 1 OF 2

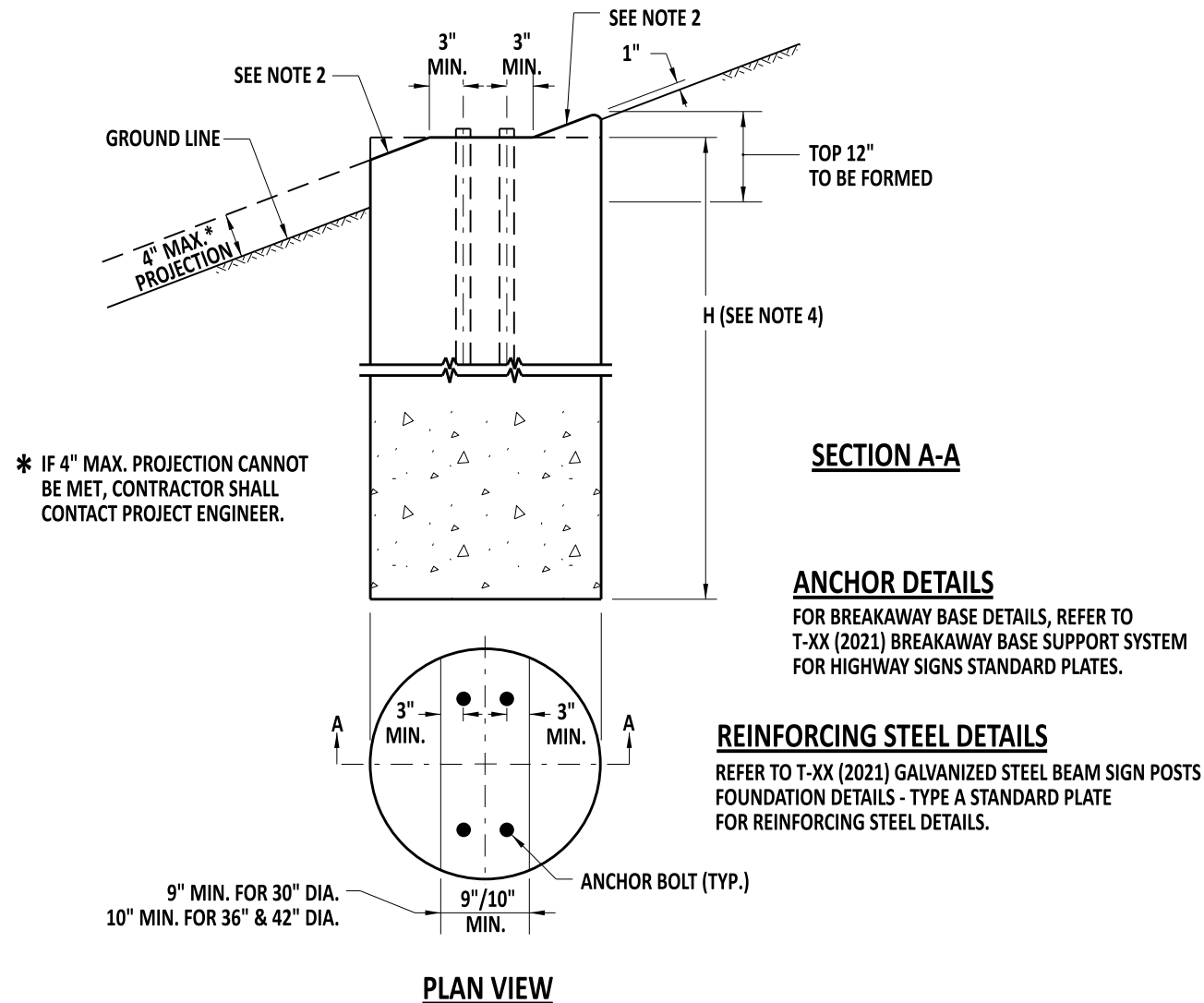
REVIEWED

12/16/2022
DEPUTY DIRECTOR - DESIGN
DATE

APPROVED

12/21/2022
CHIEF ENGINEER
DATE

SCALE : NTS

BREAKAWAY TYPE C SIGN POST FOUNDATIONS**STEEL BREAKAWAY SUPPORT
FOUNDATION SELECTION MATRIX**

POST SIZE	FOUNDATION DIAMETER	ROADWAY CUT / FILL SLOPE										
		≥2:1	3:1	4:1	5:1	6:1	7:1	8:1	9:1	10:1	12:1	<13:1
W6X9	30"	***	C	C	C	C	B	B	B	A	A	A
W6X12	30"	***	C	C	C	C	B	B	B	A	A	A
W6X15	30"	***	C	C	C	C	B	B	B	A	A	A
W6X16	30"	***	C	C	C	C	B	B	B	A	A	A
W8X18	30"	***	C	C	C	C	B	B	B	A	A	A
W8X21	30"	***	C	C	C	C	B	B	B	A	A	A
W10X22	36"	***	***	C	C	C	C	B	B	B	A	A
W10X26	36"	***	***	C	C	C	C	B	B	B	A	A
W12X26	36"	***	***	C	C	C	C	B	B	B	A	A
W14X30	36"	***	***	C	C	C	C	B	B	B	A	A
W16X31	36"	***	***	C	C	C	C	B	B	B	A	A
W18X35 OR W18X40	36"	***	***	C	C	C	C	C	B	B	B	A

* IF A FOUNDATION EXCEEDS THE 4" AASHTO CRITERIA, THE CONTRACTOR SHALL CONTACT THE ENGINEER FOR APPROPRIATE GUIDANCE.

NOTES:

1. THIS FOUNDATION SHALL BE USED ONLY IN LOCATIONS MEETING SLOPE CRITERIA IN ACCORDANCE WITH THE STEEL BREAKAWAY SUPPORT FOUNDATION SELECTION TABLE.
2. SLOPED PORTIONS OF THE FOUNDATION SHALL MATCH THE FINISHED GROUND SLOPE.
3. ON FILL SLOPES GREATER THAN 6:1 BUT NO STEEPER THAN 3:1, FOUNDATIONS DESIRABLY SHOULD BE INSTALLED A MINIMUM OF 14 FT BEYOND THE HINGE POINT. THE HINGE POINT IS THE POINT OF SLOPE TRANSITION FROM THE SHOULDER SLOPE, OR A RELATIVELY FLAT RECOVERY AREA ADJACENT TO THE ROADWAY, TO A STEEPER FORESLOPE, (ALSO KNOWN AS THE FORESLOPE BREAK).
4. REFER TO T-XX (2021) GALVANIZED STEEL BEAM SIGN POSTS FOUNDATION DETAILS - TYPE A FOR FOUNDATION DIMENSIONS AND REINFORCING STEEL DETAILS.



Andrew Sholt
ENGINEERING SUPPORT

12/13/2022
DATE

RECOMMENDED

BREAKAWAY STEEL SIGN SUPPORT FOUNDATIONS

STANDARD NO. T-23 (2022)

SHT. 2 OF 2

REVIEWED

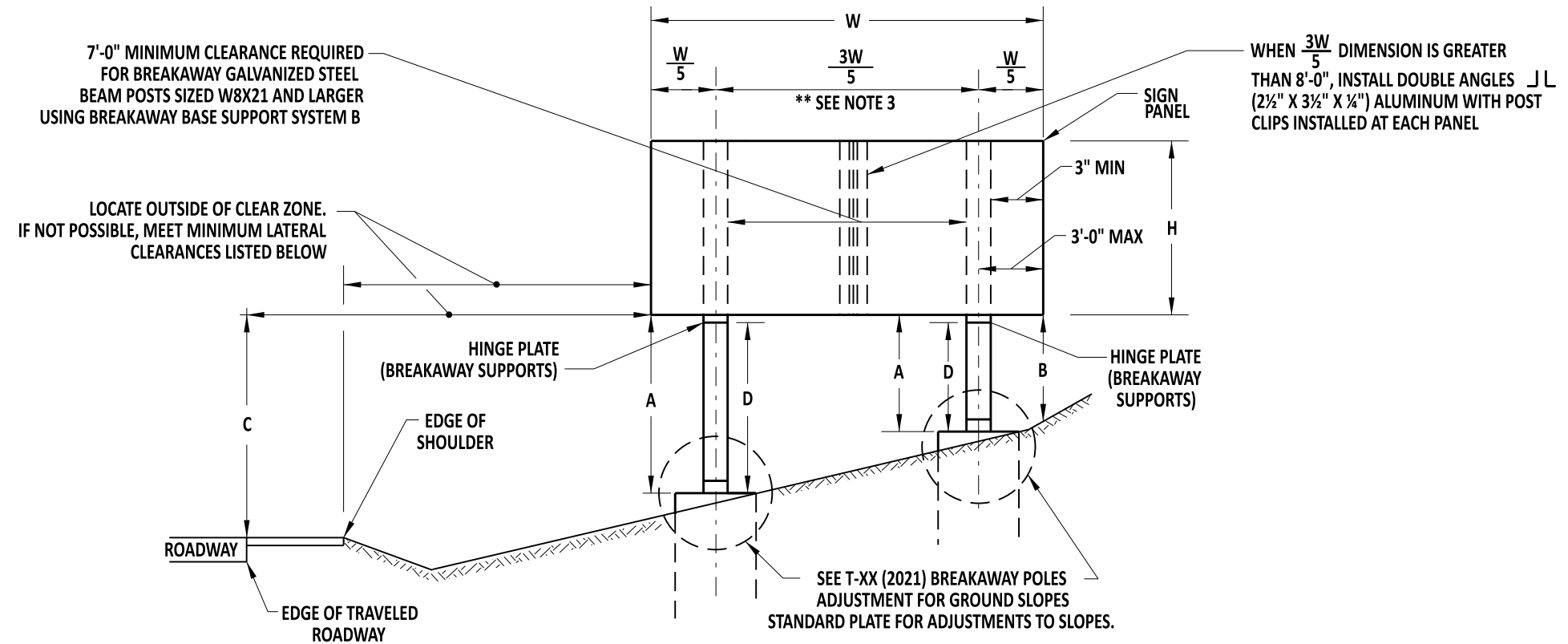
DEPUTY DIRECTOR - DESIGN

12/16/2022
DATE

APPROVED

CHIEF ENGINEER

12/21/2022
DATE



VERTICAL CLEARANCE FOR SIGNS

- A. 7'-6" MINIMUM FOR BREAKAWAY SUPPORTS
 B. 2'-0" MINIMUM
 C. 7'-6" MINIMUM
 ALL MOUNTING HEIGHTS LESS THAN 7'-6" REQUIRE DeIDOT APPROVAL. THIS DIMENSION IS TO BE INCREASED ONLY WHEN REQUIRED TO MEET 'A' (MIN.) = 7'-6" FOR BREAKAWAY AND/OR 'B' (MIN.) = 2'-0". ALL DIMENSIONS ARE TO BOTTOM OF SIGN.
 D. 7'-0" MINIMUM FOR BREAKAWAY SUPPORTS MEASURED TO CENTERLINE OF HINGE PLATE.

PREFERRED SIGN LOCATION IS OUTSIDE OF THE CLEAR ZONE
 IF THIS CONDITION CANNOT BE MET, THE SIGN SHOULD BE PLACED
 AS FAR FROM THE ROADWAY AS POSSIBLE

MINIMUM LATERAL CLEARANCES FOR SIGNS

- 1 = EDGE OF SIGN 6'-0" FROM FACE OF W-BEAM TRAFFIC BARRIER
 2 = EDGE OF SIGN 6'-0" PREFERABLE MIN. (2'-0" ABSOLUTE MIN.) FROM FACE OF CURB
 3 = EDGE OF SIGN 6'-0" FROM EDGE OF SHOULDER
 4 = EDGE OF SIGN 6'-0" PREFERABLE MIN. (2'-0" ABSOLUTE MIN.) FROM EACH EDGE OF SHOULDER IN MEDIAN
 5 = EDGE OF SIGN 6'-0" FROM EACH EDGE OF SHOULDER CENTERED IN GORE AREA

NOTES:

- FOR THREE SUPPORTS, POSTS SHOULD BE SPACED $\frac{1}{6}$, $\frac{1}{3}$, $\frac{1}{3}$, $\frac{1}{6}$ X WIDTH OF SIGN, WITHIN MAXIMUM EDGE SPACING AS SHOWN.
- ALL SUPPORTS SHALL BE BREAKAWAY.
- REFER TO CONTRACT PLANS FOR POST SPACING.
- AASHTO LRFD SPECIFICATION FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINARIES, AND TRAFFIC SIGNALS, 1st EDITION INCLUDING INTERIMS THROUGH 2021.
- REFER TO T-xx (2021) BREAKAWAY STEEL SIGN SUPPORT CHARTS FOR ADDITIONAL INFORMATION.



Andrew Shott
 ENGINEERING SUPPORT
 12/13/2022
 DATE
 RECOMMENDED

GALVANIZED STEEL BEAM SIGN POSTS VERTICAL AND LATERAL CLEARANCE

STANDARD NO. T-24 (2022) SHT. 1 OF 1

REVIEWED

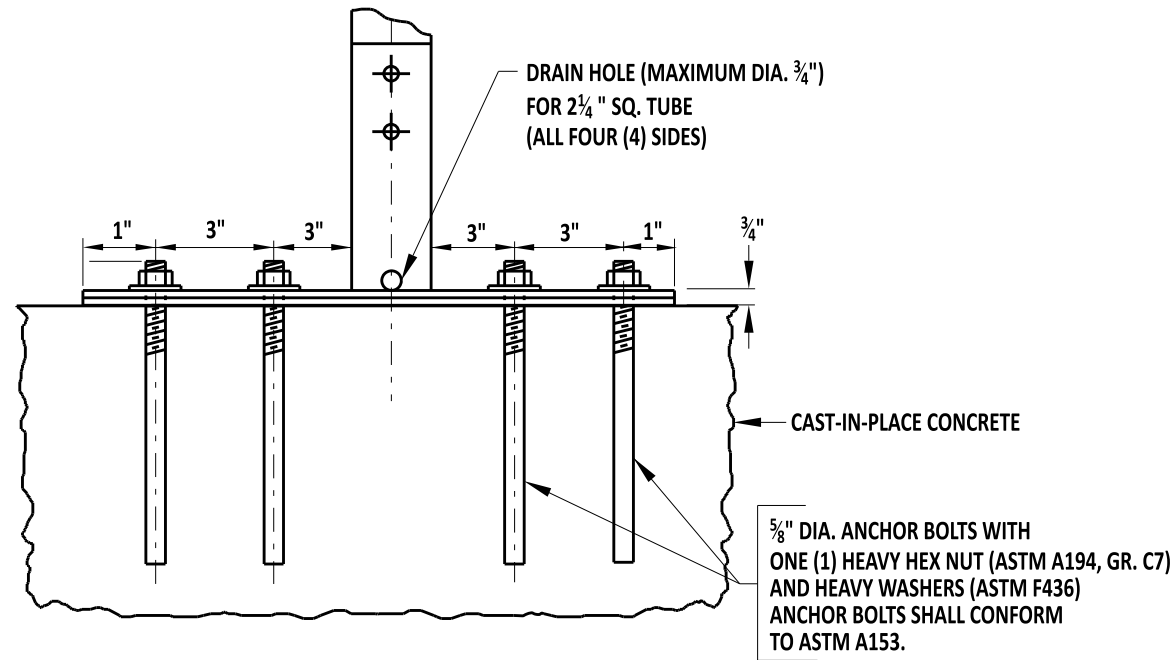
Mike Lee
 DEPUTY DIRECTOR - DESIGN

12/16/2022
 DATE

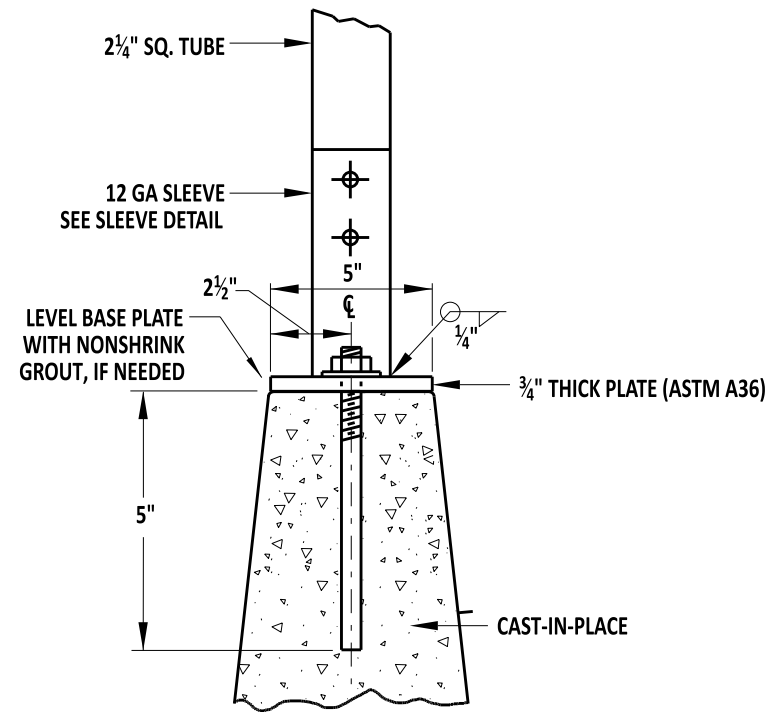
APPROVED

Shrey
 CHIEF ENGINEER

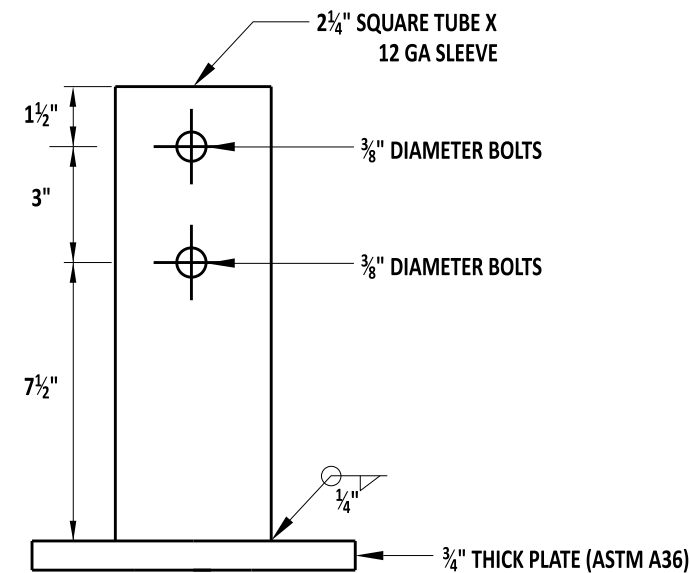
12/21/2022
 DATE



DETAIL 'A' - SIDE VIEW CONCRETE BARRIER

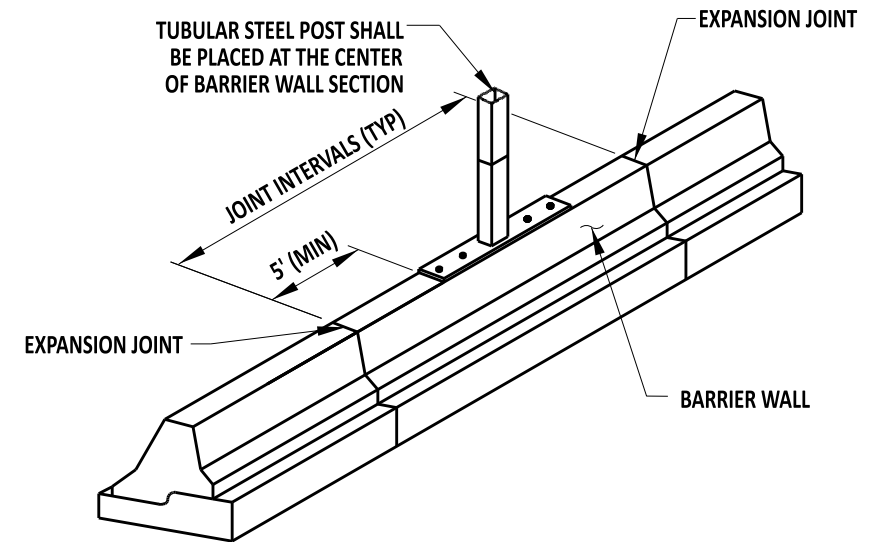


DETAIL 'A' CONCRETE BARRIER



SLEEVE DETAIL

**CONCRETE BARRIER MOUNTED MILE MARKER
MAXIMUM SIGN AREA - 8 SQ. FT.**



NOTES:

1. MILE MARKER BARRIER MOUNT SHALL BE INSTALLED FOLLOWING DEMUTCD GUIDANCE. SIGNS MAXIMUM WIDTH SHALL NOT EXCEED 18"
2. THE MILE MARKER BARRIER MOUNT SHALL BE INSTALLED 5' (MIN.) OFF OF ALL EXPANSION JOINTS.
3. REFER TO OTHER APPROPRIATE SERIES STANDARD FOR ATTACHMENT DETAIL.
4. THE CONTRACTOR SHALL VERIFY ANY EXISTING CONDUIT BEFORE DRILLING HOLES. IF THE CONDUIT IS WITHIN 10" FROM THE TOP OF THE BARRIER, THE ENGINEER SHALL BE CONTACTED FOR ALTERNATE DESIGN.



Andrew Shott
ENGINEERING SUPPORT
RECOMMENDED
DATE 12/13/2022

MILE MARKER BARRIER MOUNT

STANDARD NO. T-25 (2022) SHT. 1 OF 1

REVIEWED

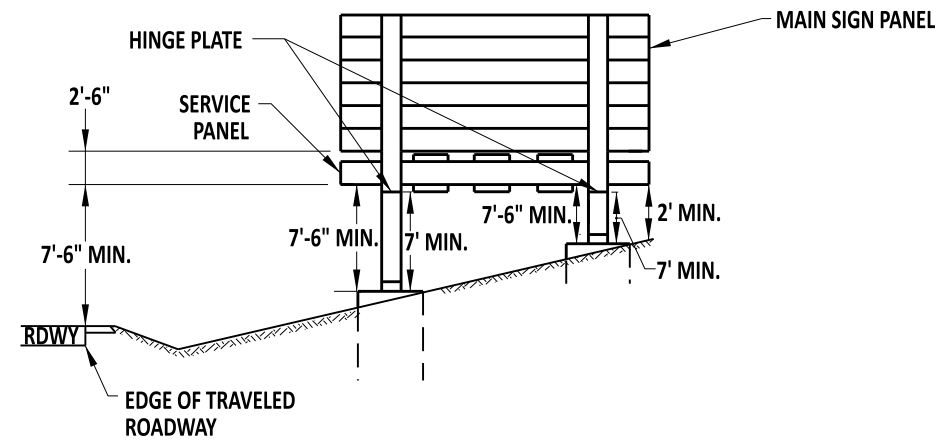
Mike Lee
DEPUTY DIRECTOR - DESIGN

12/16/2022
DATE

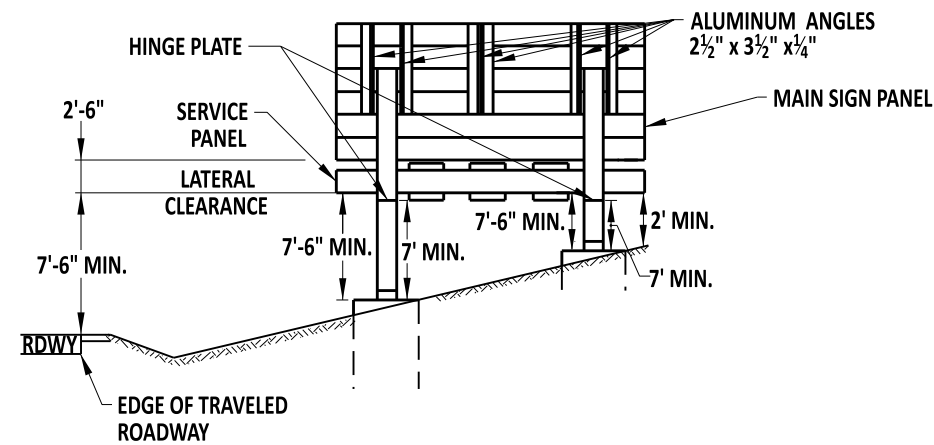
APPROVED

Shrey
CHIEF ENGINEER

12/21/2022
DATE

**NOTES:** (ALL SCENARIOS)

1. MUST MAINTAIN 7'-0" MIN. FROM FOUNDATION TO HINGE PLATE ON BREAKAWAY SUPPORT.
2. MUST MAINTAIN 10'-0" FROM BOTTOM OF MAIN SIGN PANEL ABOVE EDGE OF TRAVELED LANE WHEN SERVICE PANEL IS PRESENT.
3. (1' X SIGN WIDTH) SERVICE PANEL ATTACHED TO "I" BEAMS WITH POST CLIPS (EIGHT (8) PER SERVICE PANEL)

SERVICE PANEL INSTALLATIONS TO NEW BREAKAWAY SUPPORTS**NOTES:**

1. RAISE MAIN SIGN PANEL 2' MAX. TO OBTAIN THE PROPER CLEARANCE FROM ROADWAY.
2. SERVICE PANEL ATTACHED ABOVE HINGE PLATE WITH POSTCLIPS (EIGHT (8) PER SERVICE PANEL).
3. UNSUPPORTED MAIN SIGN PANEL TO BE STIFFENED USING ALUMINUM ANGLES $2\frac{1}{2} \times 3\frac{1}{2} \times \frac{1}{4}$.

SERVICE PANEL ATTACHMENTS TO EXISTING BREAKAWAY SUPPORTS

Andrew Shott
ENGINEERING SUPPORT

12/13/2022
DATE

RECOMMENDED

**GALVANIZED STEEL BEAM SIGN POSTS SERVICE PANEL
ATTACHMENT DETAILS**

STANDARD NO. T-26 (2022)

SHT. 1 OF 1

REVIEWED

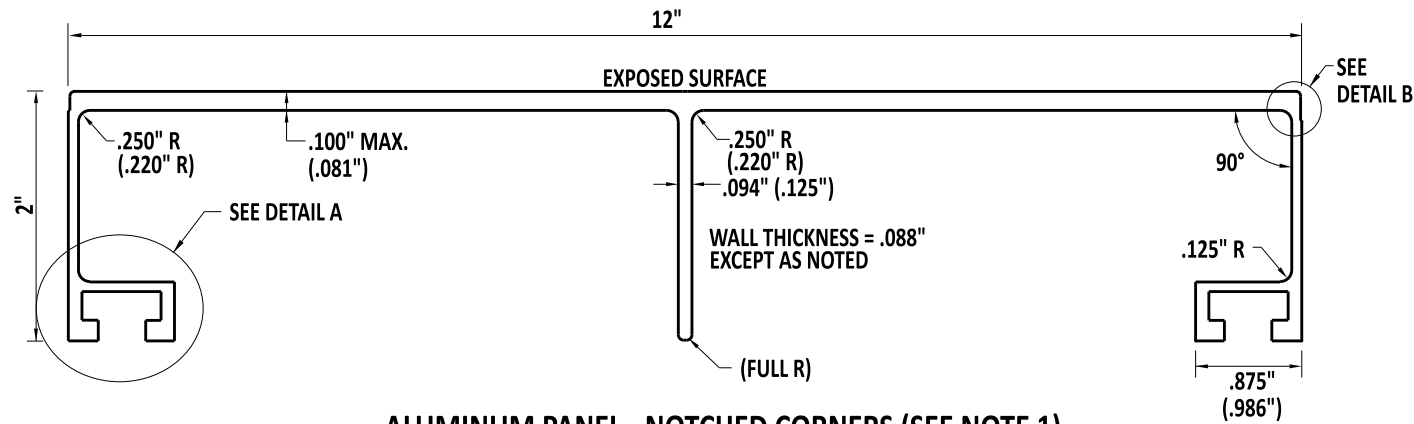
Mike Lee
DEPUTY DIRECTOR - DESIGN

12/16/2022
DATE

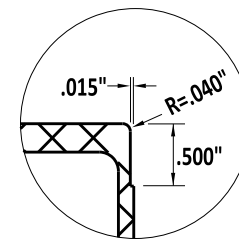
APPROVED

Shay
CHIEF ENGINEER

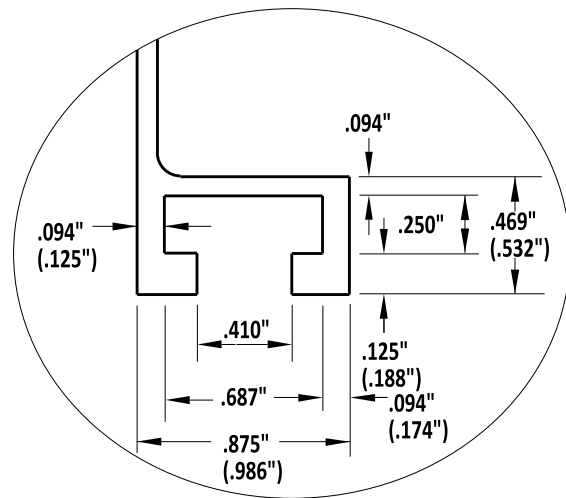
12/21/2022
DATE



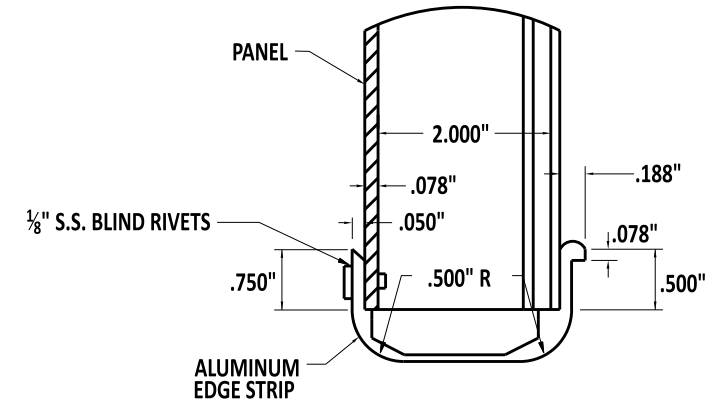
ALUMINUM PANEL - NOTCHED CORNERS (SEE NOTE 1)



DETAIL B

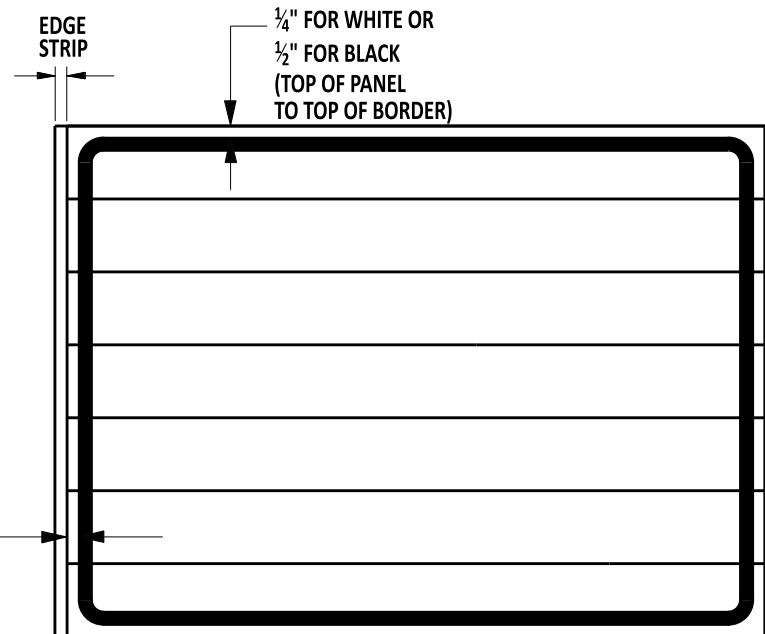


DETAIL A

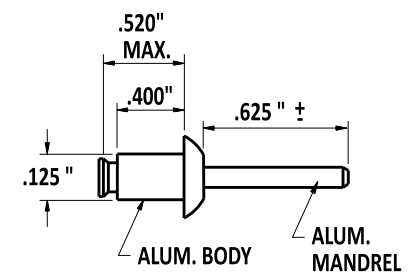


DETAIL OF EDGE STRIP

NOTE:
EDGE STRIP SHALL BE PLACED ON BOTH SIDES OF ALL EXTRUDED PANEL SIGNS.



BORDER DETAIL



DETAIL OF A BLIND RIVET FOR CUTOUT LETTER (TYP.)

NOTES:

1. ALUMINUM PANELS SHALL HAVE NOTCHED CORNERS AS SHOWN. NO OTHER TYPE CORNERS ARE ACCEPTABLE.
2. ALTERNATE DIMENSIONS INDICATED IN PARENTHESES ARE ACCEPTABLE.
3. THE REFLECTIVE SHEETING APPLIED TO EXTRUDED PANELS SHALL EXTEND APPROX. 3/8" OVER EACH SIDE IN THE NARROW DIRECTION AND SHALL BE ADHERED TO THE PANEL.



Andrew Shott
ENGINEERING SUPPORT
RECOMMENDED
12/13/2022
DATE

EXTRUDED ALUMINUM DETAIL

STANDARD NO. T-27 (2022) SHT. 1 OF 2

REVIEWED

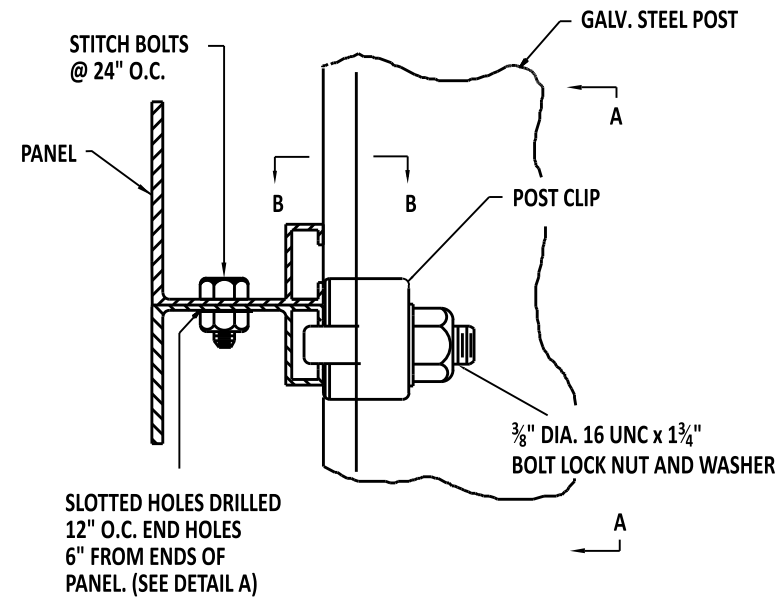
Mike Lee
DEPUTY DIRECTOR - DESIGN

12/16/2022
DATE

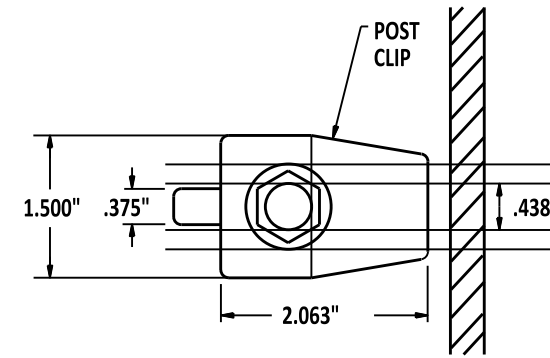
APPROVED

Shrey
CHIEF ENGINEER

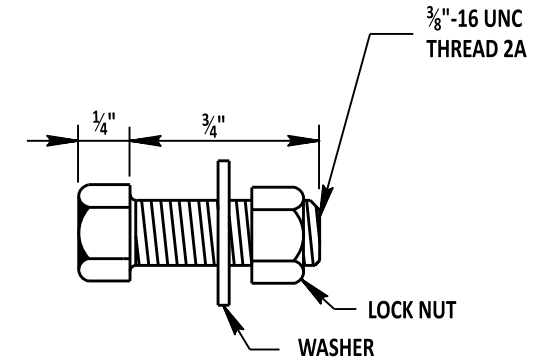
12/21/2022
DATE



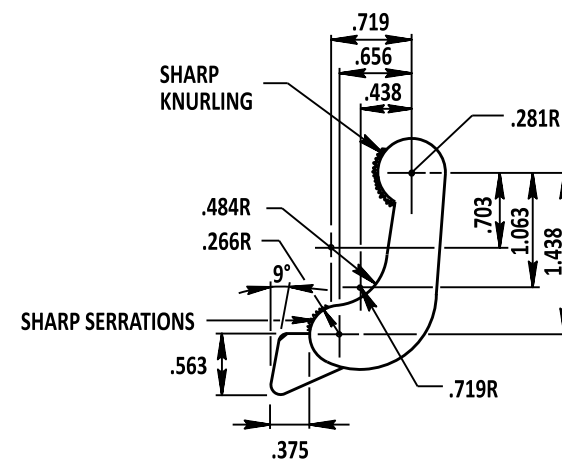
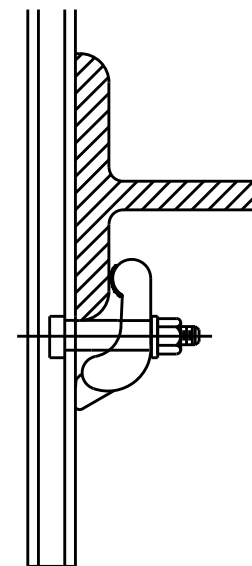
SIGN PANEL ASSEMBLY



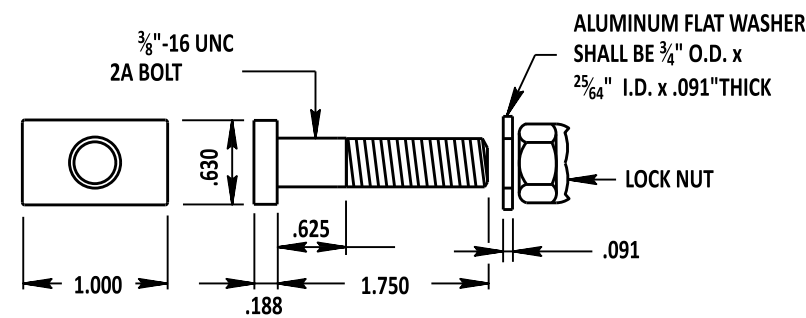
SECTION A-A



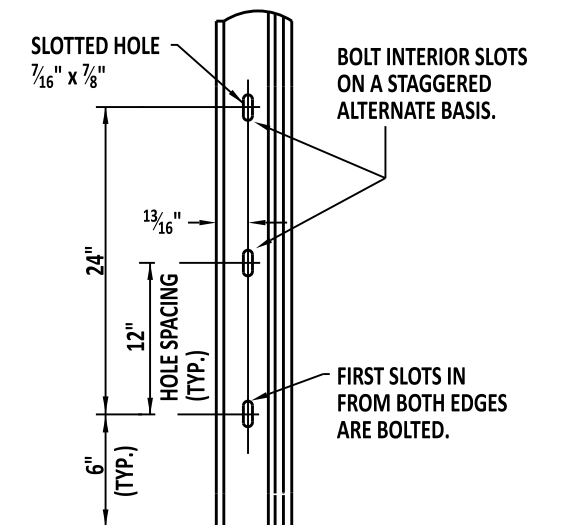
STITCH BOLT (TYP.)



POST CLIP (TYP.)



POST CLIP BOLT (TYP.)



DETAIL A

BOLTS	B211, ALLOY 2024-T4, 6262-T9 OR 6061-T6
FLAT WASHERS	B209, ALLOY 2024-T4
RIVETS	ALLOY 5052
NUTS	B211, ALLOY 2017-T4
POST CLIPS	B108, ALLOY 356-T6



Andrew Shott
ENGINEERING SUPPORT
RECOMMENDED
12/13/2022
DATE

EXTRUDED ALUMINUM DETAIL

STANDARD NO. T-27 (2022) SHT. 2 OF 2

REVIEWED

Mike Lee
DEPUTY DIRECTOR - DESIGN

12/16/2022
DATE

APPROVED

Shrey
CHIEF ENGINEER

12/21/2022
DATE